ORDER NO. APD8507802

Service Manual

AUTO PRODUCTS

CQ-474EG

CASSETTE CAR STEREO TAPE PLAYER with LW/MW/UKW(FM) MPX RADIO

STEREO-CASSETTENSPIELER with LW/MW/UKW-STEREO RADIO

CONTENTS

	Page
SPECIFICATIONS	1
FEATURES	1
DIMENSIONS	2
ADJUSTING ANTENNA TRIMMER	2
FUSE	2
MAINTENANCE	2
OPERATION OF CONTROL	3
SCHEMATIC DIAGRAM	5
WIRING DIAGRAM	6
ELECTRICAL CONNECTION	7
BASIC NOISE SUPPRESSION METHODS	7
INSTALLATION INSTRUCTIONS	8
DIALCORD STRINGING GUIDE	10
DISASSEMBLY INSTRUCTIONS	11
ALIGNMENT POINTS	12
ALIGNMENT INSTRUCTIONS	13
TRAFIC INFORMATION SYSTEM	19
OPERATION OF AUTO-REVERSE DECK	20
SERVICEING OF CASSETTE DECK	22
EXPLODED VIEW (UNIT)	26
REPLACEMENT PARTS LIST	27, 28, 30 ~ 36
EXPLODED VIEW (TAPE DECK)	29

INHALTSVERZEICHNIS

	Seite
TECHNISCHE DATEN	1
MERKMALE	1
ABMESSUNGEN	2
ABGLEICH DES ANTENNENTRIMMERS	2
SICHERUNG	2
WARTUNG	2
BEDIENUNGSELEMENTE UND IHRE FUNKTION	4
SCHALTBILT	5
VERDHATUNG	6
ELEKTRISCHER ANSCHLUß	7
GRUNDENTSTÖRUNG	7
ANWEISUNGEN FÜR EINBAU	8
ZIFFER BLATTSEIL BINDUNG	10
ANWEISUNGEN FÜR DER AUSBAU	11
ABGLICHPUNKTE	12
ABGLEICH-ANLEITUNG	16
VERKEHRS-AUSKUNFTSYSTEM	19
BETRIEB DES CASSETTENDECK MIT AUTOMATISCHER BANDLAUFUMKEHR	20
WARTUNGSHINWEISE FÜR DAS CASSETTE	22
AUFGELÖSTE DARSTELLUNGS (GANZES GERÄT)	26
ERSTATZTEILLISTE	27, 28, 30 ~ 36
AUFGELÖSTE DARSTELLUNGS (TONBANDGERÄT)	29

Panasonic®

CQ-474EG

SPECIFICATIONS*

Power Supply:	DC 12V (11 ~ 16V) Test Voltage 14.4V Negative Ground
Current Consumption:	Less than 0.8A (at 0.5W)
Max. Power Output:	2 x 8W (at 4Ω)
Power Output:	2 x 5W (DIN 45 324)
Speaker Impedance:	4 ~ 8Ω
Car Stereo	
Reproduction System:	4-Track, 2-Program Stereo
Tape Speed:	4.76 cm/sec.
Wow/Flutter:	0.12% (WRMS)
FM(UKW) Stereo Radio	
Frequency Range:	87.5 ~ 108 MHz
Intermediate frequency:	10.7 MHz
Maximum Sensitivity:	Less than 4 dB/μV (S/N 10 dB)
MW Radio	
Frequency Range:	515 ~ 1,620 kHz
Intermediate Frequency:	450 kHz
Maximum Sensitivity:	Less than 26 dB/μV (0.5W)
LW Radio	
Frequency Range:	150 ~ 290 kHz
Intermediate Frequency:	450 kHz
Maximum Sensitivity:	Less than 35 dB/μV (0.5W)
Dimensions:**	178(W) x 150(D) x 52(H) mm
Weight:**	1.3 kg

* Specifications subject to change without notice.
** Dimensions and Weight shown are approximate.
*** C-120 tape is not recommended to use.

TECHNISCHE DATEN*

Stromversorgung:	GS 12V (11 ~ 16V) Testspannung 14,4V Batterieklemme negativ an Masse
Stromverbrauch:	Weniger als 0,8A (bei 0,5W)
Max. Ausgangsleistung:	2 x 8W (bei 4Ω)
Nennausgangsleistung:	2 x 5W (DIN 45 324)
Lautsprecher-Impedanz:	4 ~ 8Ω
Cassetten-Abspielgerät	
Wiedergabe-System:	4-Spur, 2-Programm Stereo
Band-Geschwindigkeit:	4,76 cm/sek.
Gleichlaufschwankungen:	0,12% (WRMS)
UKW/Stereo-Radio	
Frequenzbereich:	87,5 ~ 108 MHz
Zwischenfrequenz:	10,7 MHz
Max. Empfindlichkeit:	Weniger als 4 dB/μV (S/N 10 dB)
MW-Radio	
Frequenzbereich:	515 ~ 1.620 kHz
Zwischenfrequenz:	450 kHz
Max. Empfindlichkeit:	Weniger als 26 dB/μV (0,5W)
LW-Radio	
Frequenzbereich:	150 ~ 290 kHz
Zwischenfrequenz:	450 kHz
Max. Empfindlichkeit:	Weniger als 35 dB/μV (0,5W)
Abmessungen:**	178(B) x 150(T) x 52(H) mm
Gewicht:**	1,3 kg

* Anderungen vorbehalten.
** Gewicht und Abmessungen in annähernden Wertena- gegeben.
*** C-120-Cassetten sind nicht zu empfehlen.

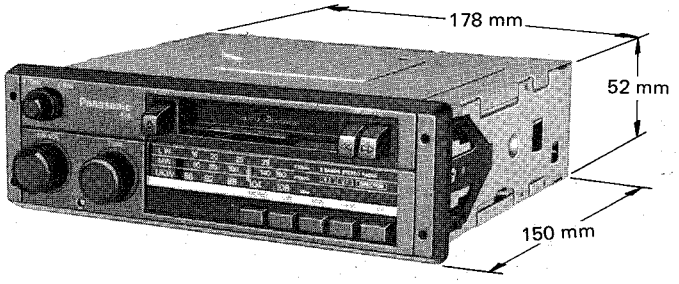
FEATURES

- 4-track, 2-program automatic reversing car stereo tape player with LW/MW/FM MPX, radio.
- Sensitive superheterodyne system with IC's and ceramic filters.
- A.T.C. (Automatic Tone Control)
- A.S.C. (Automatic Separation Control)
- Automatic reversing at tape end.
- VF decoder.
- E.I.A. (Electronic Interference Absorption)
- Easy-to adjust antenna trimmer.
- For in-dash installation.

MERKMALE

- Auto-Cassettentonbandgerät in Vierspur-Zweikanal-Stereo mit Automatischer Wiederholspur LW/MW/UKW MPX-Radio.
- Hochempfindlicher Superhet mit ICs und Keramikfiltern.
- A.T.C.
- A.S.C.
- Automatisches Undrehen am Bandende.
- VF Dekoder.
- E.U.A.-Schaltung.
- Mühelos abgleichbarer Antennentrimmer.
- Einbau direkt ins Armaturebrett.

DIMENSIONS/ABMESSUNGEN

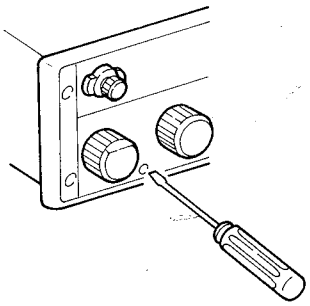


ADJUSTING ANTENNA TRIMMER

1. Extend antenna fully and turn on the radio.
2. Set the Band Selector to "MW". Tune in the weakest radio station between 1,200 kHz and 1,500 kHz (250m and 200m) or find a proper noise between stations.
3. Set volume control to maximum, and adjust the antenna trimmer so that the sound will be the loudest.

ABGLEICH DES ANTENNENTRIMMERS

1. Zuerst die Antenne vollständig ausziehen und Radio einschalten.
2. Den Empfangsbereichwähler für "MW" drücken. Und auf einen schwachen Sender im Bereich zwischen 1.200 kHz und 1.500 kHz (250m und 200m) einstellen.
3. Den Antennentrimmer durch Verstellen nach links oder rechts auf großmögliche Lautstärke und klarsten Empfang abstimmen.



FUSE

Be sure to use a fuse of specified rating (3A) when replacing a blown fuse.

Fuses rated at higher capacity, use of any substitute, or connection without a fuse may result in a fire hazard or damage to the unit.

If the replacement fuse fails, contact your nearest authorized Service Center.

SICHERUNG

Muß die Sicherung erneuert werden, nur Sicherungen mit der gleichen Nennstromstärke (3A) verwenden. Verwendung von Sicherungen mit höherem Nennwert, oder Ersatzmittel, bzw. Anschluß ohne Sicherung führt zu Feuergefahr oder Beschädigung des Gerätes.

Sollte eine neu eingesetzte Sicherung durchbrennen, wenden Sie sich bitte an Ihren Fachhändler.

MAINTENANCE/WARTUNG

Tape Head Cleaning

To obtain optimum performance, clean the tape head as often as necessary, depending upon frequency of use and tape cleanliness.

The tape head in the cassette car stereo mechanism can accumulate dust and tape residue, causing poor or wavering sound.

To clean the tape head, open the cassette slot and use a cotton swab, dampened in isopropyl alcohol (or use a commercially available head cleaning tape).

CAUTION: Do not use any solution other alcohol for head cleaning.

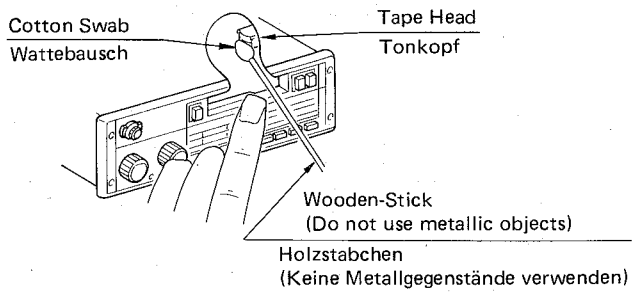
Reinigen des Tonkopfes

Um optimales Leistungsvermögen zu gewährleisten, sollte der Tonkopf regelmäßig, abhängig von der Betriebsdauer und Sauberkeit des Bandes, gereinigt werden.

Der Tonkopf des Autostereocassettenlaufwerkes kann Staub und Bandabrieb sammeln, was sich in schlechter oder schwankender Tonqualität bemerkbar macht.

Um den Tonkopf zu reinigen, den Cassettenschacht öffnen und die Reinigung mit einem in Isopropylalkohol getauchten Wattebausch vornehmen (oder eine im Fachhandel erhältliche Tonkopf-Reinigungscassette verwenden).

VORSICHT: Für die Reinigung kein anderes Lösungsmittel als Alkohol verwenden.



Outside Cleaning

To clean the outside of the set (escutcheon and chassis), use a soft cloth to wipe the surface.

CAUTION: Do not use benzine, thinner, or any other type of solvent.

Reinigen der Oberfläche

Um die Oberfläche des Gerätes zu reinigen (Blende und Chassis), ein weiches Tuch verwenden.

VORSICHT: Niemals Benzin, Verdünnungsmittel oder andere Lösungsmittel benutzen.

OPERATION OF CONTROLS

Power Switch/Volume Control (SW • VOL)

Turn the knob clockwise to switch the power to the unit on, which also lights up the dial panel. Adjust volume to the desired level with this knob. Turn the knob clockwise to increase volume; and counterclockwise to decrease volume. To switch the power to the unit off, turn the knob fully counterclockwise until a click is heard.

Balance Control (BAL)

To adjust stereo balance, turn the knob clockwise or counterclockwise until sound from the left and right speakers is about equal from your listening position.

Tone Control (TONE)

Turn this knob clockwise for increased treble, counterclockwise for increased bass.

Tape Program Selector (PROGRAM)/
Fast Forward/Rewind Buttons

Depress both buttons fully to select the desired direction of tape play as indicated by the Tape Direction Indicator. Otherwise, tape direction changes automatically when the tape reaches its end (Auto Reverse System). Fast Forward/Rewind Buttons (◀◀ ▶▶) See Figs. A and B.

NOTES:
1. To stop fast forward or rewind, simply release the "locked" button by pushing the other (opposite) button half-way.
2. When the tape reaches its end during fast forward or playback operation, "Auto Reverse" will operate.

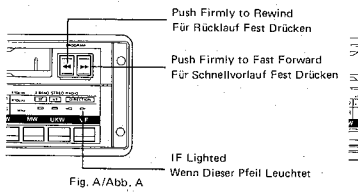


Fig. A/Abb. A

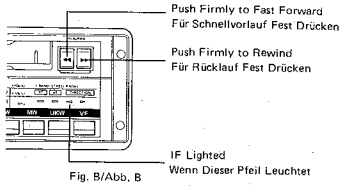
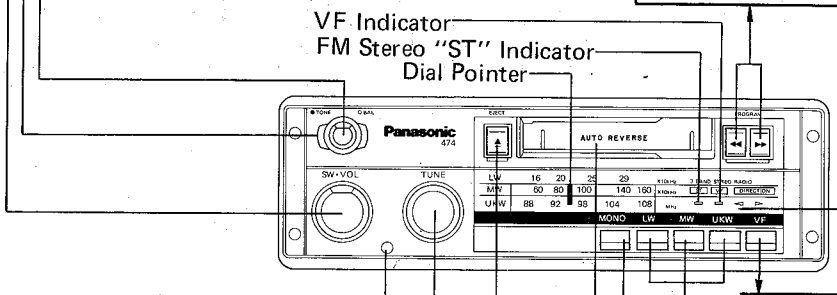


Fig. B/Abb. B



Tape Direction Indicator (DIRECTION)

The right arrow (►) indicates that the top side of the cassette tape is being played. The left arrow (◄) indicates that the bottom side is being played.

Tuning Control (TUNE)

Turn this knob to your desired radio station. The Dial Pointer indicates the radio station tuned in.

Eject Button (EJECT)

To stop tape manually, push firmly this button. (The radio turns on again.) The cassette will pop out for easy removal.

NOTES:
1. If the cassette is not manually ejected, "Auto Reverse" will operate and playback continues on the other side of the tape.
2. The cassette should always be removed from the Cassette Slot when not in use.

VF Button

1. When the button is pushed on, UKW stations which are broadcasting "traffic-information" (VF) can only be received. The VF Indicator will automatically light up.
2. To hear "traffic-information" announcements only on the selected "VF" UKW radio station, simply turn the Volume Control fully to the left (minimum) position. Every time traffic-information is announced, sound will be automatically heard from the radio.
3. When the cassette tape is inserted while the radio is tuned to "VF" UKW radio station, "traffic-information" announcements can still be heard every time it is "on air".

Note on items 2 and 3 above:

As you drive away from the "VF" UKW radio station and the signal becomes weaker, the VF broadcasts cannot be received anymore. Thus the VF Indicator will cease to light and a "beeping" tone will alert you of this situation. In this case, tune in a closer, more powerful "VF" UKW radio staion. To tune in to another "VF" station, proceed as follows: (For item 3 above, it is better still to remove the cassette tape before tuning.)

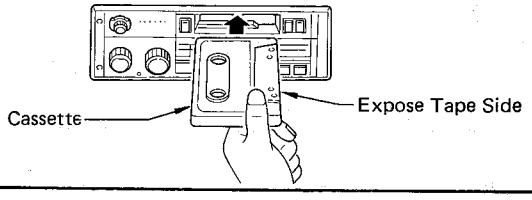
1) Turn Volume Control to your desired sound level. At this stage, however, the sound will not be audible.
2) Tune in to the appropriate local "VF" station. Then the sound will be audible.
3) After tuning, you can proceed operation again by choosing either item 2 or item 3, as desired.

CASSETTE SLOT

(The Power Switch should be switched on.)

Insert cassette with exposed tape side facing to the right. Push inward until the mechanism captures the cassette. Playback starts automatically when the cassette tape is inserted. The Tape Direction Indicator will light up.

NOTES:
1. Insertion of the cassette will automatically cut off the radio (except "VF" reception), and tape playback will start. Radio will come back on automatically when the cassette is ejected.
2. Tape drive mechanism will automatically "reverse" to prevent from tape jam trouble that may happen, when too much tape comes out from its reels. If "reverse" happens frequently, if suggests you to check or change cassette in play.



Band Selector (LW-MW-UKW)

Select the FM band by pushing the "UKW" button, the MW band by pushing the "MW" button and the LW band by pushing the "LW" button. For FM reception, the FM Stereo "ST" Indicator lights up when "FM stereo" is being broadcast.

Mono Button (MONO)

Switch the button on (depressed in) in weak FM signal areas to obtain clear FM reception (monaural). Push the button again (depressed out) for normal FM stereo reception.

BEDIENUNGSELEMENTE UND IHR FUNKTION

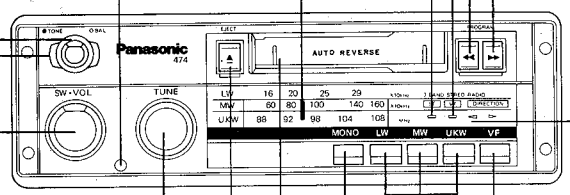
Ein/Aus-Schalter/Lautstärkeregler
(SW • VOL)
Drehen Sie den Knopf im Uhrzeigersinn, um das Gerät einzuschalten; die Skalenbeleuchtung leuchtet auf. Die gewünschte Lautstärke mit diesem Knopf einstellen. Den Knopf im Uhrzeigersinn drehen, um die Lautstärke zu erhöhen, und gegen den Uhrzeigersinn, um sie zu senken. Zum Ausschalten des Geräts den Knopf ganz gegen den Uhrzeigersinn drehen, bis ein Klicken zu hären ist.

Klangregler (TONE)
Diesen Knopf im Uhrzeigersinn drehen,um die Höhen zu betonen; den knopf gegen den Uhrzeigersinn drehen, wenn die Bässe betont werden sollen.

Balanceregler (BAL)
Diesen Knopf so einstellen, daß optimale Stereo-Perspektive sichergestellt ist, d.h. die Lautstärke vom linken und rechten Lautsprecher gleich ist.

Bandprogrammwähler (PROGRAM)
Schnellvorlauf/Rücklauftasten
Beide Tasten fest drücken, um die gewünschte Bandlaufrichtung einzustellen, die dann an der Bandlaufrichtungsanzeige angezeigt wird. Läuft das Tonband vollständig ab, dann wird am Bandende die Bandlaufrichtung automatisch umgeschaltet (Auto Reverse System).
Schnellvorlauf/Rücklauftasten (◀◀ ▶▶) Siehe Abb. Bund (Seite 3)
HINWEISE:
1. Um die Schnellvor-oder Rücklauffunktion abzuschalten, einfach die entsprechende Taste freigeben, indem die andere Taste halb eingedrückt wird.
2. Läuft das Tonband während dem Schnellvorlauf-oder der Wiedergabe vollständig ab, dann arbeitet die Bandlaufrichtungs-Umschaltautomatik (Auto Reverse).

Skalenzeiger
FM Stereo "ST" Indicator
VF Indicator
Antennentrimmer



Bandlaufrichtungsanzeige
(DIRECTION)
Der rechte Pfeil (▶) der Bandlaufrichtungsanzeige zeigl an, daß die obere Bandhälfte abgespielt wird, wogegen der linke Pfeil (◀) ein Abspielen der unteren Bandhälfte anzeigt.

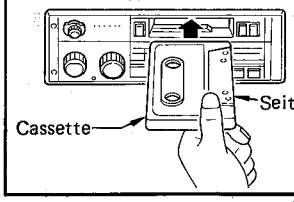
Abstimmregler (TUNE)
Durch Drehen dieses Knopfes auf die gewünschte Station abstimmen, wobei der Skalenzeiger die Senderfrequenz anzeigt.

Verkehrsfunk-Wahltaste (VF)
1. Wenn diese Taste gedrückt wird, können nur UKW-Stationen empfangen werden, die Verkehrsfunk ausstrahlen. Die VF-Anzeige leuchtet auf.
2. Um nur Verkehrsfunk-Informationen zu hören, den Lautstärkeregler ganz nach links (minimum) drehen, wodurch nur Rundfunkansagen hinsichtlich Verkehrsinformationen gehört werden können.
3. Wird eine Cassette bei auf Verkehrsfunk geschaltetem Radio eingelegt, können Verkehrsfunkinformationen trotzdem gehört werden.

Anmerkungen zu den Punkten 2 und 3:
Wenn Sie sich von der Station entfernen, welche den Verkehrsfunk ausstrahlt, und Sie die Verkehrsfunkinformationen nicht mehr hören können, erlischt die VF-Anzeige und ein Warnton ertönt. In diesem Falle auf eine nahegelegene, feldstarke Station abstimmen, die ebenfalls Verkehrsfunkinformationen ausstrahlt. Um auf eine andere Verkehrsfunkstation abzustimmen, wie folgt verfahren. (Zu obigen Punkt 3 ist noch zu erwähnen, daß es besser ist, vor dem Abstimmen die Cassette zu entfernen.)
1) Mit Hilfe des Lautstärkeregler den gewünschten Horpegel einstellen. Zu diesem Zeitpunkt ist der Ton jedoch noch nicht zu hören.
2) Auf die örtliche Station, die Verkehrsfunkinformationen ausstrahlt abstimmen, wonach der Ton vernommen werden kann.
3) Nach dem Abstimmen können Sie die gewünschte Gerätefunktion wählen, indem Sie Punkt 2 oder 3 befolgen.

Auswurftaste (EJECT)
Um die Cassetten-Wiedergabe zu beended, diese Taste drücken (das Radio wird dadurch wieder eingeschaltet). Die Cassette springt heraus und kann einfach entfernt werden.
HINWEISE:
1. Wenn die Cassette nicht ausgeworfen wird, dann schaltet die Bandlaufrichtungs-Umschaltautomatik (Auto Reverse) am Bandende auf die andere Bandseite welche dann abgespielt wird.
2. Wenn die Cassette nicht abgespielt wird, diese unbedingt aus dem Cassettenschacht entfernen.

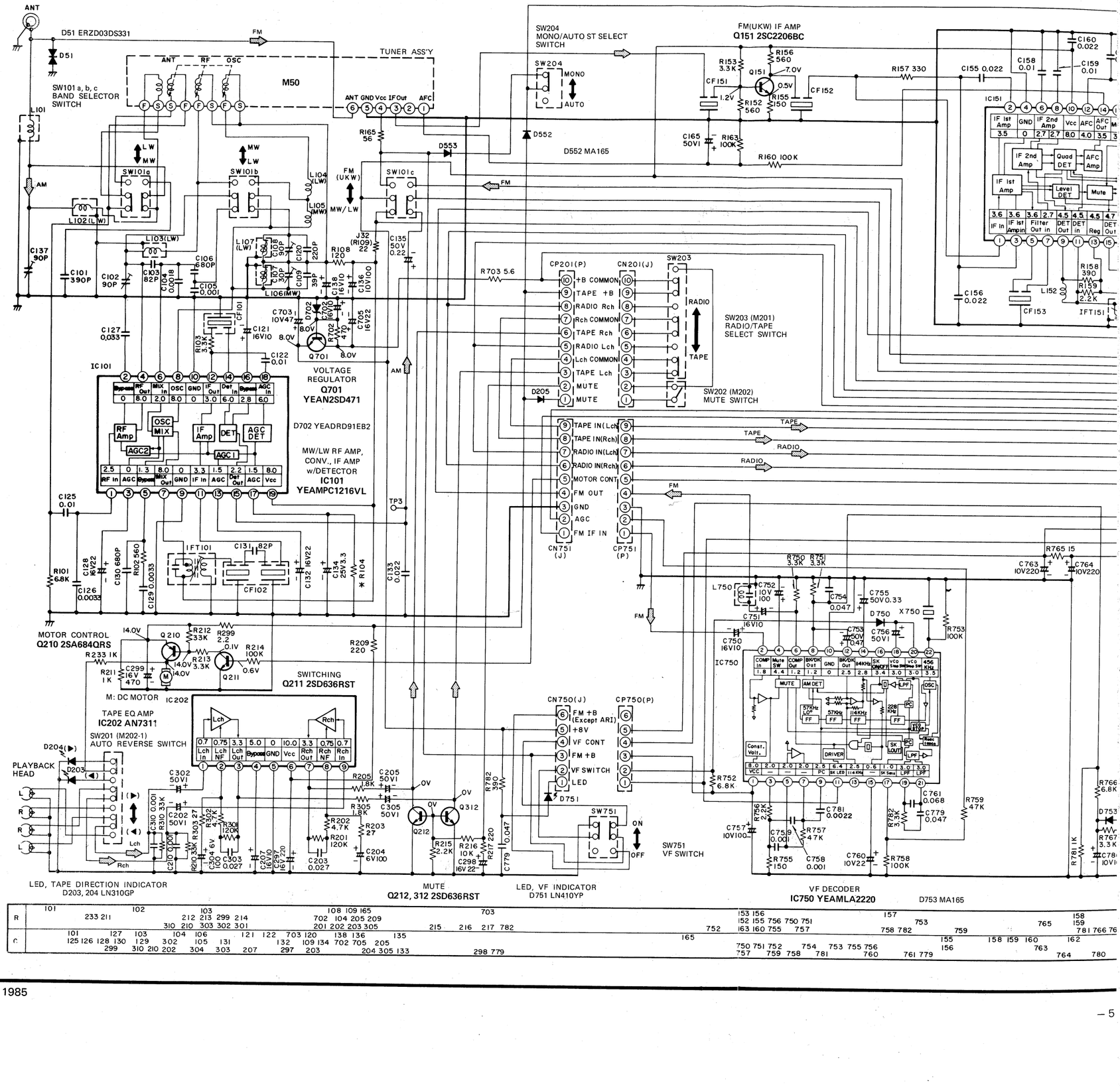
Cassettenschacht
(Den Ein/Aus-Schalter einschalten.)
Die Cassette mit der freiliegenden Tonbandfläche nach rechts schauend in den Cassettenschacht einschieben, bis die Cassette einrastet, worauf automatisch die Wiedergabe einsetzt. Die Bandlaufrichtungsanzeige leuchtet auf.
HINWEISE:
1. Durch das Einsetzen einer Cassette wird das Radio automatisch abgeschaltet (ausgenommen verkehrsfunk-Durchsagen) und das Abspielen der Cassette beginnt. Sobald die Cassette ausgeworfen wird, wird automatisch auf Rundfunkempfang umgeschaltet.
2. Falls es zu Schleifenbildung in der Cassette kommt, könnte die Bandlaufrichtungs-Umschaltautomatik ansprechen. Falls dies häufig eintritt, die Cassette prüfen und ggf. eine andere Cassette verwenden.



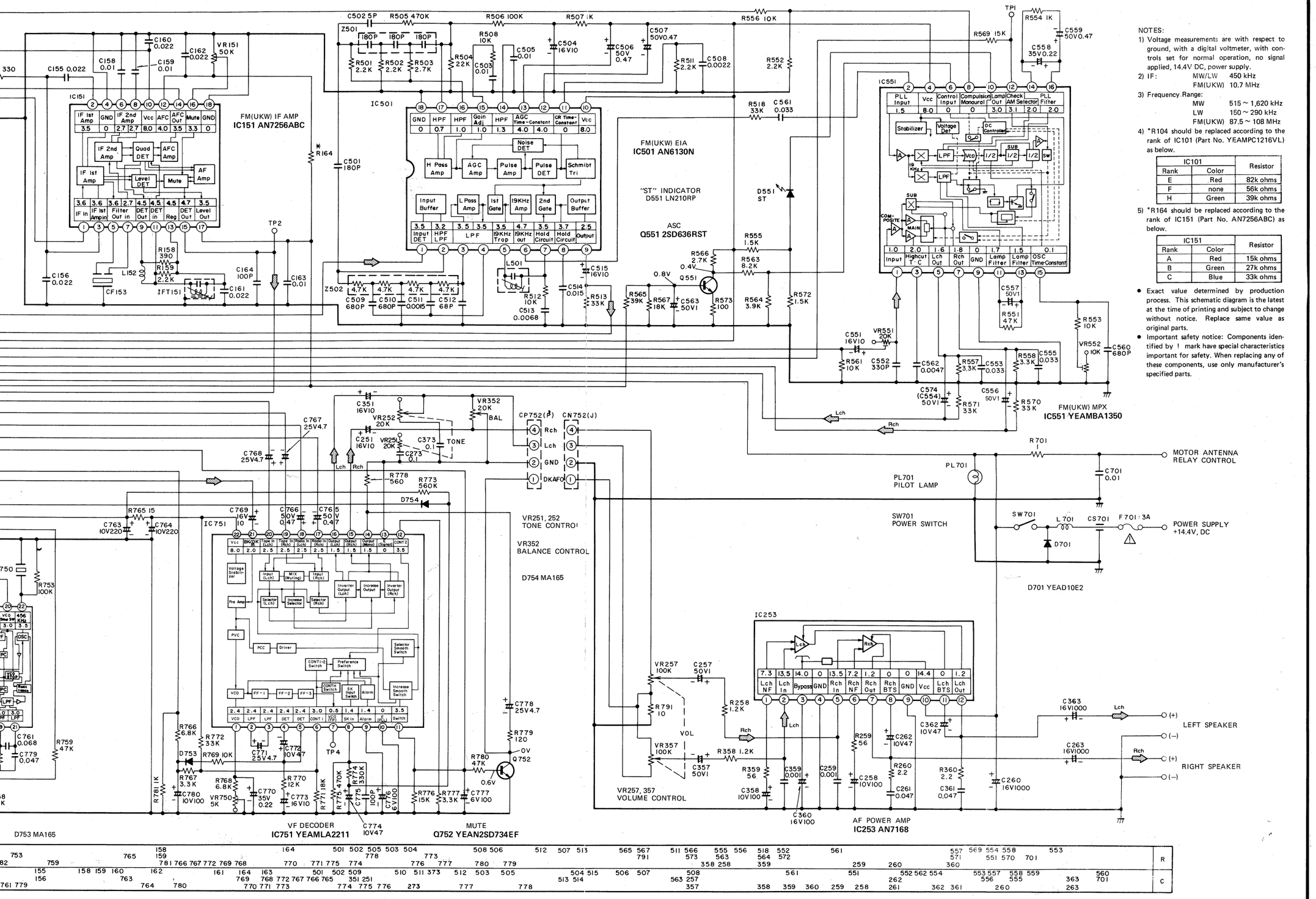
Empfangsbereichwähler (LW-MW-UKW)
Durch Drücken der mit "UKW" bezeichneten Taste wird auf UKW-Empfang, durch Drücken der mit "MW" bezeichneten Taste auf MW-Empfang und durch Drücken der mit "LW" bezeichneten Taste auf LW-Empfang geschaltet. Die UKW-Stereo "ST" Anzeige leuchtet auf, wenn es sich beim empfangenen Programm um eine UKW-Stereo-Sendung handelt.

Mono-Wahlschalter (MONO)
In Gebieten mit schwacher UKW-Senderstärke schalten Sie die Taste zu (eingedrückt), um einen klaren UKW-Empfang (monaural) zu erhalten. Für normalen UKW-Stereoempfang drücken Sie die Taste nochmals (nicht eingedrückt).

SCHEMATIC DIAGRAM/SCHALTBILT MODEL CQ-474EG



| | | |



NOTES:

1) Voltage measurements are with respect to ground, with a digital voltmeter, with controls set for normal operation, no signal applied, 14.4V DC, power supply.
2) IF: MW/LW 450 kHz
   FM(UKW) 10.7 MHz
3) Frequency Range:
   MW 515 ~ 1,620 kHz
   LW 150 ~ 290 kHz
   FM(UKW) 87.5 ~ 108 MHz
4) *R104 should be replaced according to the rank of IC101 (Part No. YEAMPC1216VL) as below.

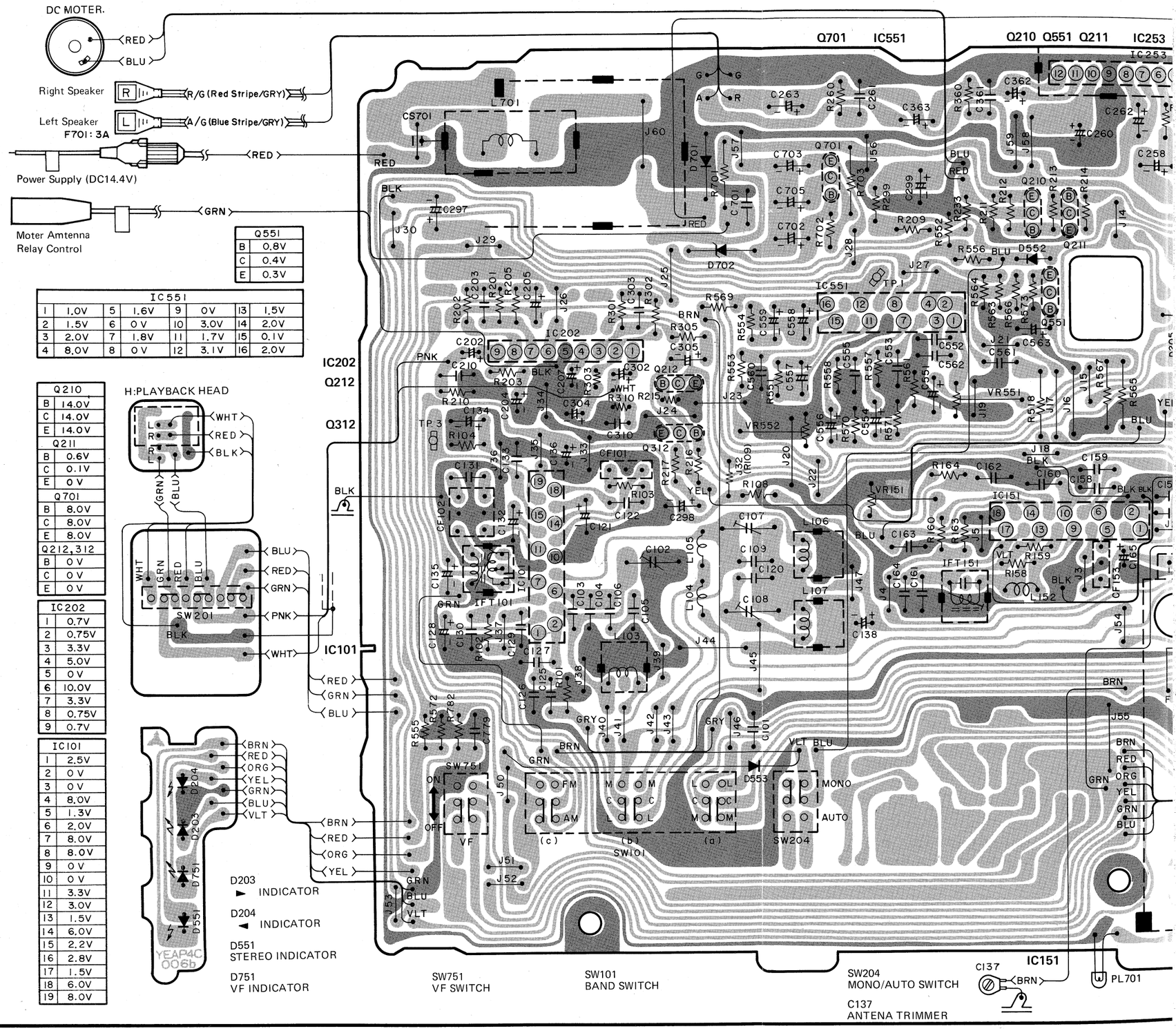
IC101		Resistor
Rank	Color	
E	Red	82k ohms
F	none	56k ohms
H	Green	39k ohms

5) *R164 should be replaced according to the rank of IC151 (Part No. AN7256ABC) as below.

IC151		Resistor
Rank	Color	
A	Red	15k ohms
B	Green	27k ohms
C	Blue	33k ohms

- Exact value determined by production process. This schematic diagram is the latest at the time of printing and subject to change without notice. Replace same value as original parts.
- Important safety notice: Components identified by ! mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

WIRING DIAGRAM/VERDHATUNG MODEL CQ-474EG



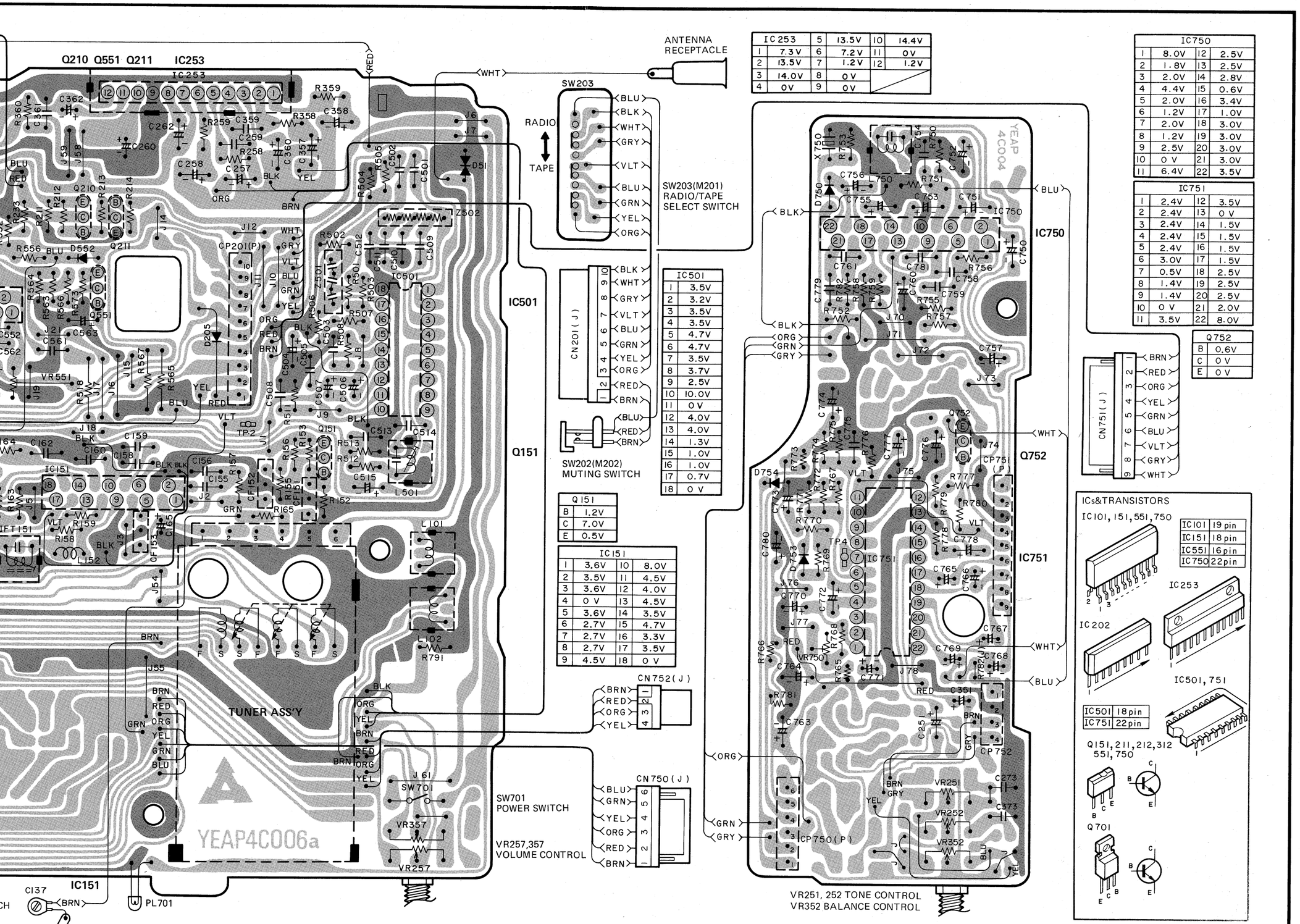
Q551	
B	0.8V
C	0.4V
E	0.3V

IC551							
1	1.0V	5	1.6V	9	0V	13	1.5V
2	1.5V	6	0 V	10	3.0V	14	2.0V
3	2.0V	7	1.8V	11	1.7V	15	0.1V
4	8.0V	8	0 V	12	3.1V	16	2.0V

Q210	
B	14.0V
C	14.0V
E	14.0V
Q211	
B	0.6V
C	0.1V
E	0 V
Q701	
B	8.0V
C	8.0V
E	8.0V
Q212,312	
B	0 V
C	0 V
E	0 V

IC202	
1	0.7V
2	0.75V
3	3.3V
4	5.0V
5	0 V
6	10.0V
7	3.3V
8	0.75V
9	0.7V

IC101	
1	2.5V
2	0 V
3	0 V
4	8.0V
5	1.3V
6	2.0V
7	8.0V
8	8.0V
9	0 V
10	0 V
11	3.3V
12	3.0V
13	1.5V
14	6.0V
15	2.2V
16	2.8V
17	1.5V
18	6.0V
19	8.0V



IC253					
1	7.3V	5	13.5V	10	14.4V
2	13.5V	6	7.2V	11	0V
3	14.0V	7	1.2V	12	1.2V
4	0V	8	0V		

IC750			
1	8.0V	12	2.5V
2	1.8V	13	2.5V
3	2.0V	14	2.8V
4	4.4V	15	0.6V
5	2.0V	16	3.4V
6	1.2V	17	1.0V
7	2.0V	18	3.0V
8	1.2V	19	3.0V
9	2.5V	20	3.0V
10	0V	21	3.0V
11	6.4V	22	3.5V

IC751			
1	2.4V	12	3.5V
2	2.4V	13	0V
3	2.4V	14	1.5V
4	2.4V	15	1.5V
5	2.4V	16	1.5V
6	3.0V	17	1.5V
7	0.5V	18	2.5V
8	1.4V	19	2.5V
9	1.4V	20	2.5V
10	0V	21	2.0V
11	3.5V	22	8.0V

Q752	
B	0.6V
C	0V
E	0V

IC501	
1	3.5V
2	3.2V
3	3.5V
4	3.5V
5	4.7V
6	4.7V
7	3.5V
8	3.7V
9	2.5V
10	10.0V
11	0V
12	4.0V
13	4.0V
14	1.3V
15	1.0V
16	1.0V
17	0.7V
18	0V

Q151	
B	1.2V
C	7.0V
E	0.5V

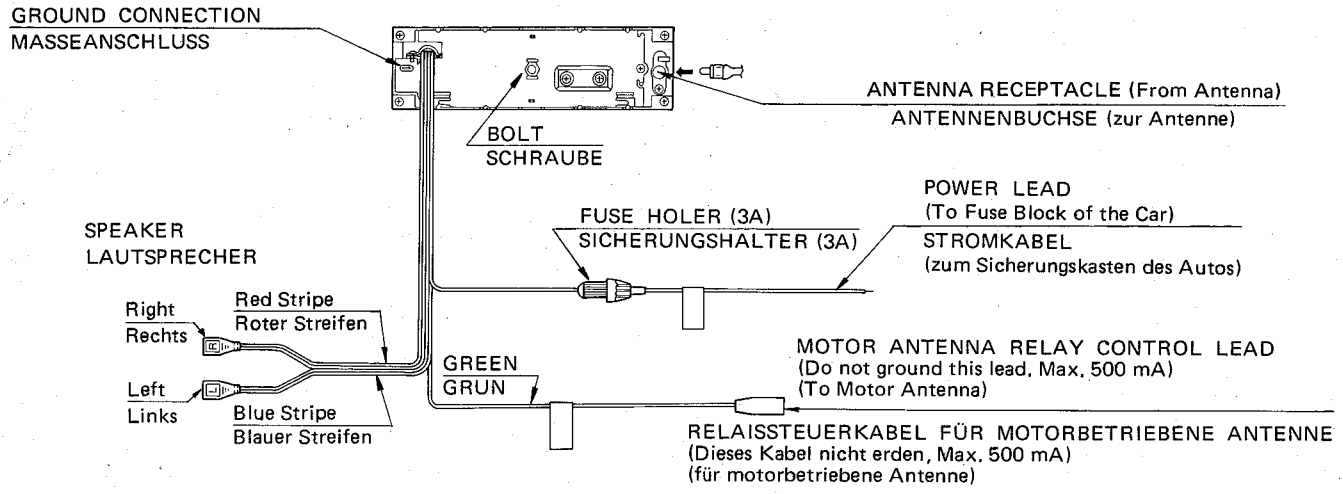
IC151			
1	3.6V	10	8.0V
2	3.5V	11	4.5V
3	3.6V	12	4.0V
4	0V	13	4.5V
5	3.6V	14	3.5V
6	2.7V	15	4.7V
7	2.7V	16	3.3V
8	2.7V	17	3.5V
9	4.5V	18	0V

IC101	19 pin
IC151	18 pin
IC551	16 pin
IC750	22 pin

IC501	18 pin
IC751	22 pin

CASSETTE CAR STEREO TAPE PLAYER w/LW/MW/UKW(FM)MPX RADIO

ELECTRICAL CONNECTION/ELEKTRISCHER ANSCHLUß



BASIC NOISE SUPPRESSION METHODS/GRUNDENTSTÖRUNG

Proper grounding is one of the most important items. The contact of the tapping screws only is not sufficient. Remove the paint under the holder of the capacitor and apply contact grease. The noise suppression can then be performed as follows:

1. **Ignition Coil** (Fig. 1)
   The ignition coil has to be provided with a 2.2μF parallel capacitor at the terminal (+). If the ignition coil is attached to the car body (e.g. cowling), the capacitor has to be connected to the engine block by means of a short grounding band.
2. **Alternator** (Fig. 2)
   Connect a 2.2μF parallel capacitor to the terminal "B+". The attachment lug of the capacitor should be connected with the alternator case.
3. **Engine Hood** (Fig. 3)
   A Grounding band has to be connected between the engine hood and the car body. Remove the paint under the grounding band completely. The grounding band is used to avoid interferences (engine noise) that are transferred from the engine compartment via the antenna into the radio.
4. **Distributor** (Fig. 4)
   Put a noise-suppression resistor (1 to 10 kΩ) between the center jack of the distributor and its plug.
   If the above basic noise suppression methods are performed correctly, but still interferences are audible, please contact your nearest service station.

Hierbei ist wieder auf einen guten Massekontakt zu achten. Der Kontakt der Blechschrauben allein genügt nicht. Der Lack unterhalb der Kondensator-Halterung muß durch Abkratzen entfernt und mit Kontaktfett behandelt werden. Die Entstörung selbst wird wie folgt durchgeführt.

1. **Zündspule:** (Abb. 1)
   Die primäre Seite der Zündspule muß mit einem Parallel-Kondensator von 2,2μF an Klemme (+) versehen werden. Ist die Zündspule an der Karosserie (z.B. Spritzwand) des Fahrzeugs befestigt, sollte die Masse (Befestigungslasche) des Kondensators durch ein kurzes Masseband mit dem Motorblock verbunden werden.
2. **Drehstrom-Lichtmaschine:** (Abb. 2)
   An die mit "B+" bezeichnete Klemme wird ein Parallel-Kondensator von 2,2μF geschaltet. Befestigungslasche des Kondensators an Masse der Lichtmaschine befestigen.
3. **Motorhaube:** (Abb. 3)
   Auf der Antennenseite wird ein Masseband zwischen Motorhaube und Karosserie angebracht. Lack unterhalb der Befestigung des Massebandes gut entfernen. Das Masseband sorgt dafür, daß keine Störungen der Zündanlage vom Motorraum über die Antenne ins Radio gelangen können.
4. **Zündverteiler:** (Abb. 4)
   Ein verteilerstecker von 1 bis 10k Ohm wird auf die mittlere Buchse des Zündverteilers gesteckt.
   Sollten weiterhin Störgeräusche auftreten, obwohl obige Grundentstörung genauestens beachtet wurde, sollte zur Beseitigung der Störquelle eine KFZ-Elektro-Werkstatt aufgesucht werden.

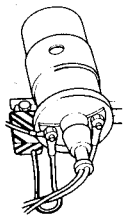


Fig. 1/Abb. 1

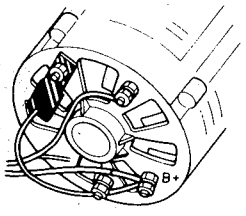


Fig. 2/Abb. 2

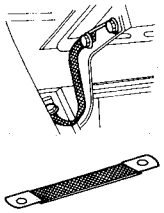


Fig. 3/Abb. 3

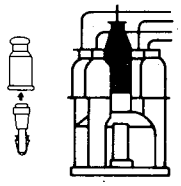


Fig. 4/Abb. 4

INSTALLATION INSTRUCTIONS/ANWEISUNGEN FÜR EINBAU

NOTES:

- Before installation check the radio operation with antenna and speakers.
- Disconnect the cable from the negative (–) battery terminal.

UNIT IN-DASH INSTALLATION

Installation Opening

In-dash installation of the unit can be possibly done if the car's dashboard has an opening for this unit as shown in Fig. 1. The car's dashboard should have a thickness of not more than 5.5 mm in order to make the installation of the unit be possible.

Installation Procedures

1. Insert the mounting case into the car's dashboard and bend the mounting springs correspondingly by means of a screwdriver, as shown in Fig. 2.
2. From the front, insert the unit into the mounting case and slide in until the lock springs engage on the right and left sides (distinct lick audible). See Fig. 2.
3. Before definitely mounting the unit to the car's dashboard, see "To Secure the Rear of the Unit" explained below and check whether the rear of the unit is properly fixed to the fire wall of car. Refer to any one of these figures, Fig. 4 or 5 that best suits stable installation of this unit. Also check the electrical connections by referring to this operating instructions. Mount the unit to the car's dashboard as shown in Fig. 2.
4. After installation reconnect the negative (–) battery terminal.

UNIT REMOVAL

- Remove the unit from the car's dashboard by placing the dismounting brackets into holes provided on the left and right of the escutcheon and pushing them in until a distinctive clicking can be heard (lock springs unlocked). Remove the unit with the help of both the dismounting brackets as shown in Fig. 3.

To Secure the Rear of the Unit

- **Using the Rear Support Strap** (See Fig. 4)
  Fix one end of the Rear Support Strap to the rear of the unit, and the other end to the Fire Wall of Car.
- **Using the Rubber Cushion** (See Fig. 5)
  If there is an existing Rear Support Bracket on the Fire Wall of Car, simply place the Rubber Cushion over the protruding bolt on the rear of the unit. Then mount the rear of the unit to the existing Rear Support Bracket.

HINWEISE:

- Vor dem Einbau Radiofunktion mittels Antenne und Lautsprecher prüfen.
- Das Kabel von der negativen (–) Batterieklemme abtrennen.

EINBAU IN DAS ARMATURENBRETT

Einbauöffnung

Das Gerät kann in das Armaturenbrett eingebaut werden, wenn das Armaturenbrett mit der in Abb. 1 gezeigten Einbauöffnung ausgestattet ist. Die Stärke des Armaturenbretts sollte nicht mehr als 5,5 mm betragen, damit die Einheit richtig eingebaut werden kann.

Einbauvorgang

1. Das Einbaugehäuse in das Armaturenbrett einführen und die Befestigungsfedern mittels Schraubenzieher biegen, wie es in Abb. 2 dargestellt ist.
2. Das Gerät von vorn in das Einbaugehäuse einführen und so weit nach hinten einschieben, bis die beiden, links- und rechtsseitigen Schließfedern mit einem deutlichen Klicken einrasten (Vgl. Abb. 2).
3. Vor dem endgültigen Einbau des Geräts in das Armaturenbrett sind die unter "Befestigung der Geräterückseite" aufgeführten Punkte zu beachten, wobei sicher gestellt werden muß, daß das Gerät richtig mit der Spritzwand verbunden ist. Danach das Gerät gemäß abb. 4 oder 5 einbauen. Die elektrischen Anschlüsse gemäß Bedienungsanleitung vornehmen. Die Befestigung des Geräts im Armaturenbrett gemäß Abb. 2 vornehmen.
4. Nach dem Einbau das Gerät wieder an die negative (–) Batterieklemme anschließen.

AUSBAU

- Für den Ausbau des Geräts die Abbaukonsolen in dafür vorgesehene Löcher links und rechts der Zierplatte stecken und eindrücken, bis ein Klicken zu hören ist (Die Riegel sind entsperrt). Das Gerät mit Hilfe der beiden Abbaukonsolen herausnehmen (Abb. 3).

Befestigung der Geräterückseite

- **Mittels Stützstrebe** (Siehe Abb. 4)
  Ein Ende der Stützstrebe an der Rückseite des Gerätes befestigen und das andere Ende an der Spritzwand anbringen.
- **Mittels Gummikissen** (Siehe Abb. 5)
  Falls bereits an der Spritzwand eine hintere Stützkonsole angebracht ist, einfach das Gummikissen an der, an der Geräterückseite überstehenden Schraube anbringen. Danach die Geräterückseite richtig an der vorhandenen Stützkonsole montieren.

Installation Parts List / Liste der Einbauteile

Illust. No. / Ref. Nr.	Description / Benennung	Part No. / Maschinenteile Nr.	Q'ty / Stückzahl
A101	Dismounting Bracket (U-shaped) / Abbaukonsolen (U-förmig)	YEFX999440	2
A102	Mounting Case / Einbaugehäuse	YEFX0211710	1
A103	Rubber Cushion / Gummikissen	YEFS01174	1
A104	Rear Support Strap / Hintere Stützstrebe	YEFG044C001	1
A105	Hex. Bolt (5mmø x 25mm) / Sechskantschraube (5mmø x 25mm)	XVG5C25FXS	1
A106	Hex. Nut (5mmø) / Sechskantmutter (5mmø)	XNG5AFXS	2
A107	Spring Washer (5mmø) / Federscheibe (5mmø)	XWA5BFX	2
A108	Plain Washer (5mmø) / Unterlegescheibe (5mmø)	XWG5FX	2
A109	Toothed Lock Washer (5mmø) / Gezahnte Sicherungsscheibe (5mmø)	XWC5CFX	1

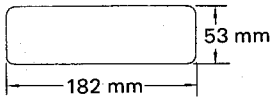


Fig. 1
Abb.1

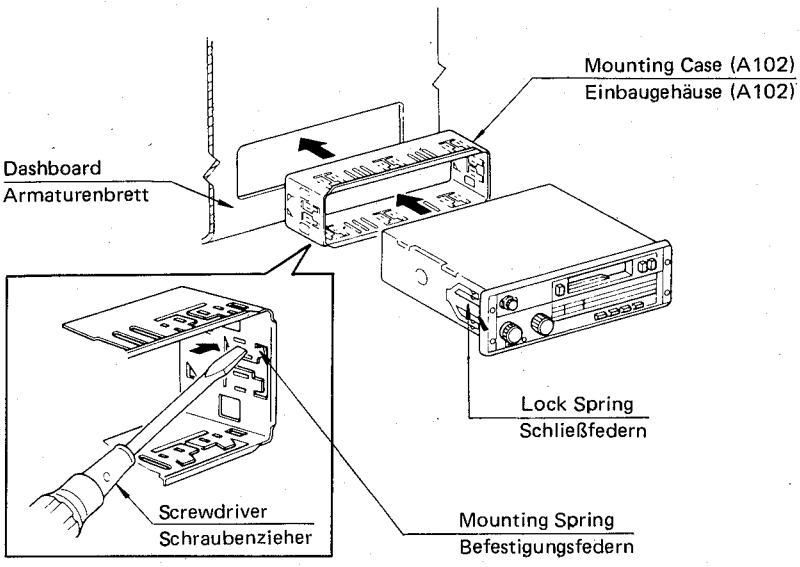


Fig. 2
Abb.2

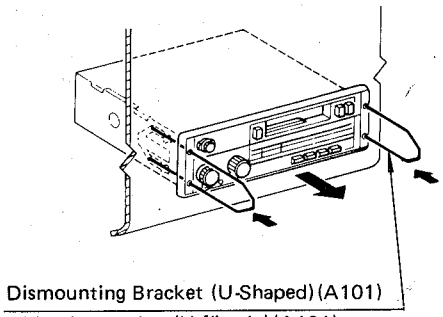


Fig. 3
Abb.3

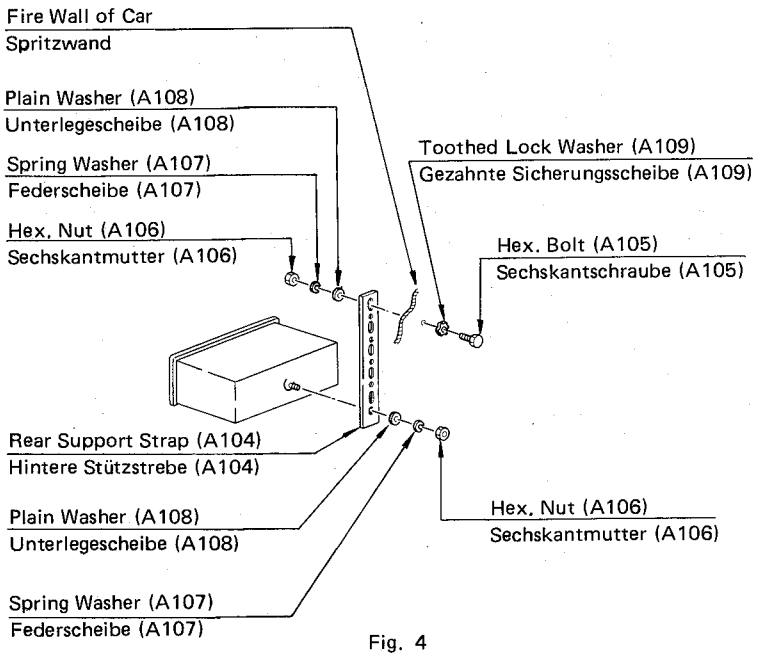


Fig. 4
Abb.4

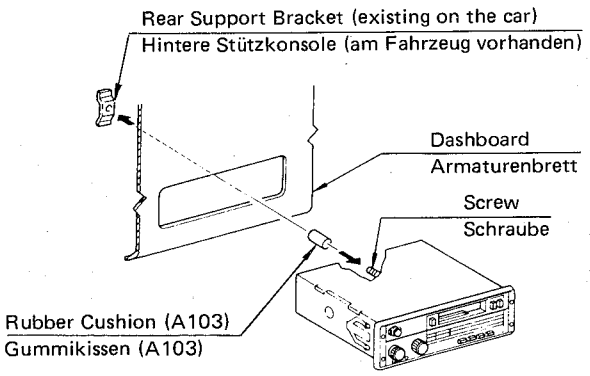


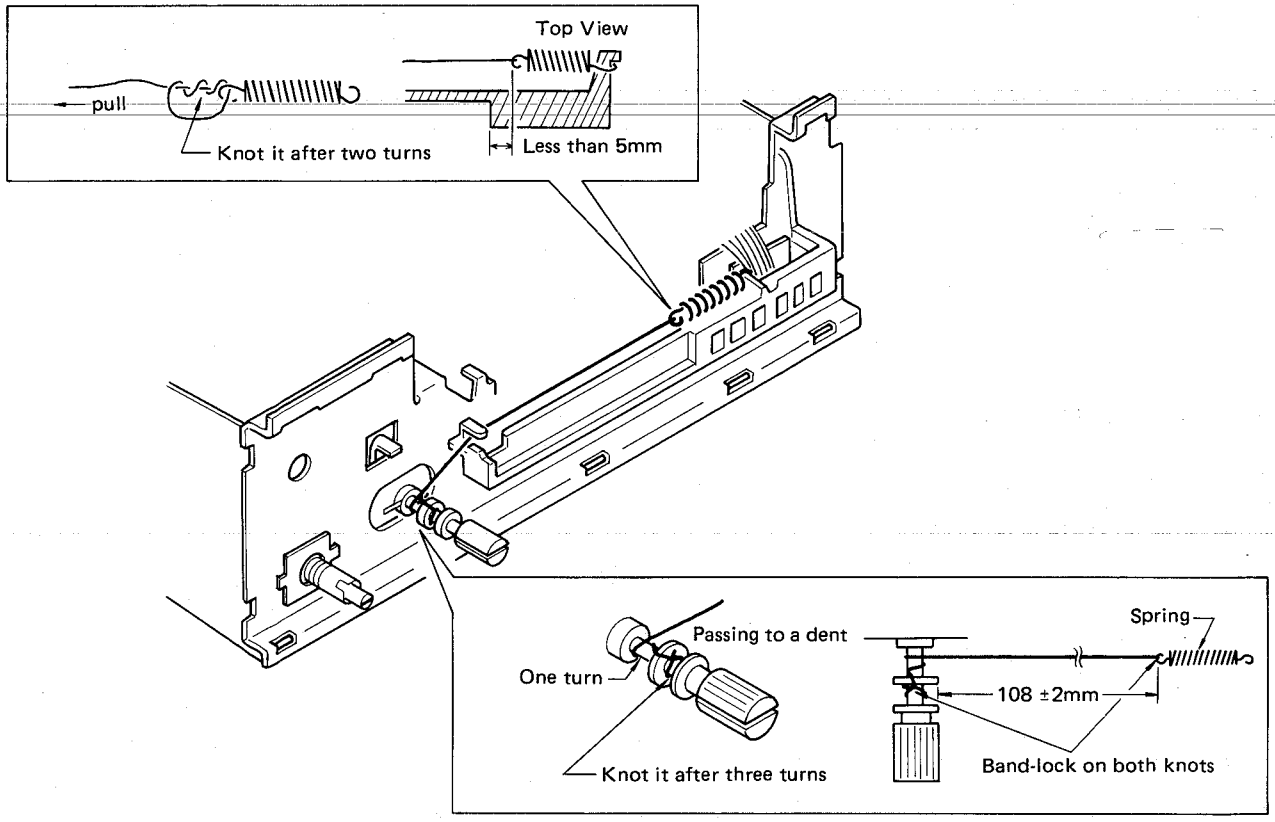
Fig. 5
Abb.5

DIAL CORD STRINGING GUIDE/ZIFFER BLATTSEIL BINDUNG

Before Stringing

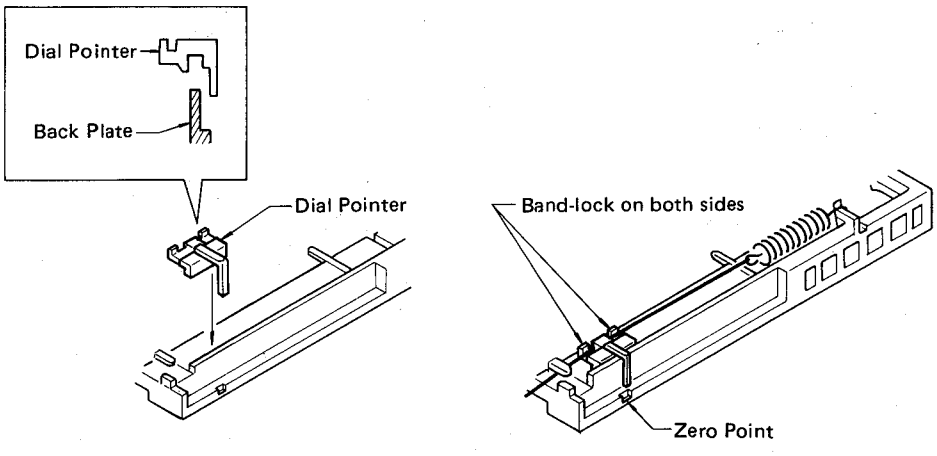
1. Remove the escutcheon ass'y.
2. Remove the upper cover by removing two screws.
3. Remove the cassette deck by removing three screws.

Stringing Procedure



After Stringing

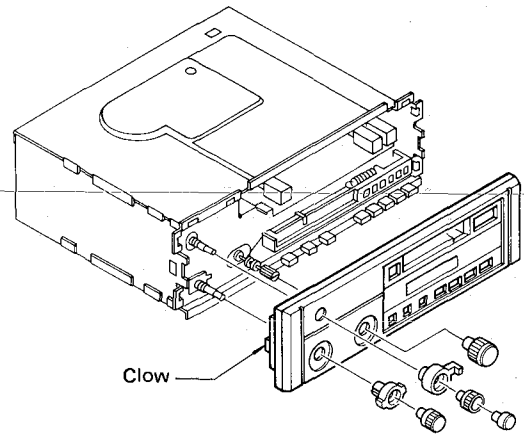
1. Insert the back plate to dial pointer.
2. Set the dial pointer to fully left end when receiving at minimum frequency (510 kHz).
3. Then, the dial pointer agreed in zero point.



DISASSEMBLY INSTRUCTIONS/ANWEISUNGEN FÜR DER AUSBAV

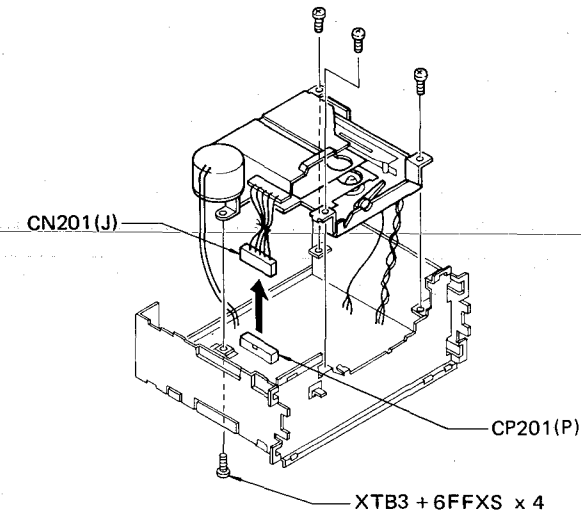
1. ESCUTCHEON ASS'Y REMOVAL

- Pull out the each knobs.
- Pull out the escutcheon by pushing two clows on both sides of the escutcheon.



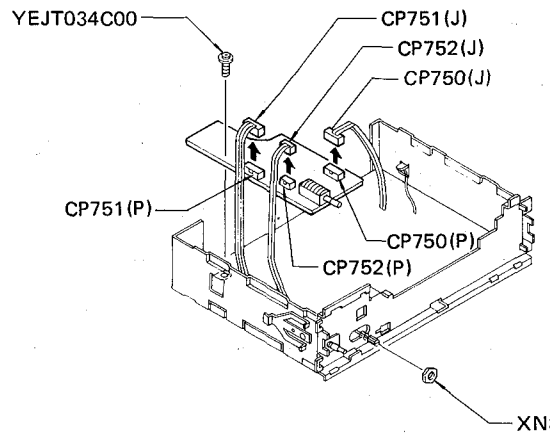
2. DECK REMOVAL

- It can be removed after four screws and lifting the deck part.
- Pull out the CN201(J). Then, melt the solder of the each wire.



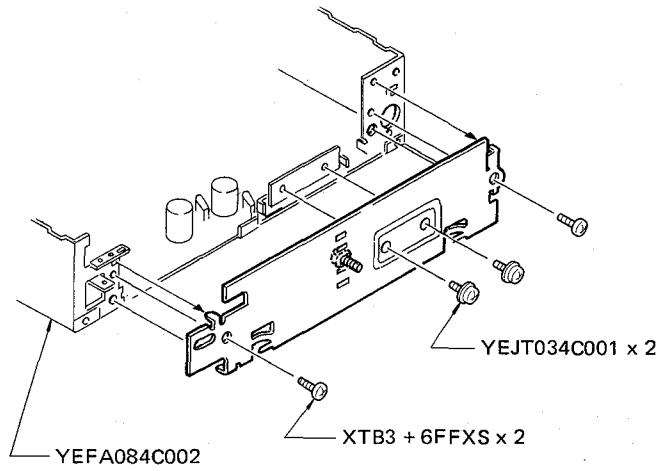
3. VF P.C.B. (AP-4C004) REMOVAL

- Remove the CN750(J).
- Pull out the CN751(J), CN752(J).
- Remove one screw.
- Remove the nut of TONE/BAL control.



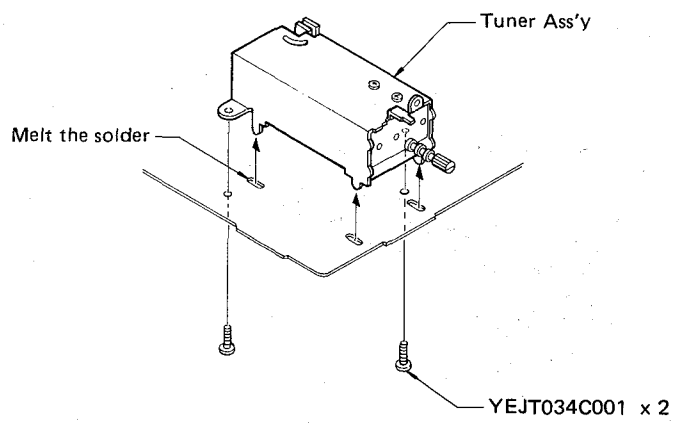
4. POWER AMP (IC253) REMOVAL

- Remove four screws of Rear plate.



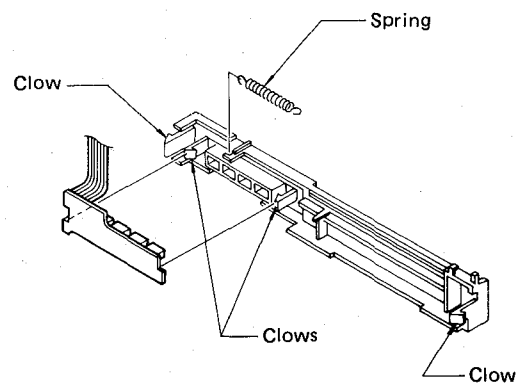
5. TUNER ASS'Y REMOVAL

- Remove two screws.
- Melt the solder of calk.
- Refer to the page 10 about stringing.

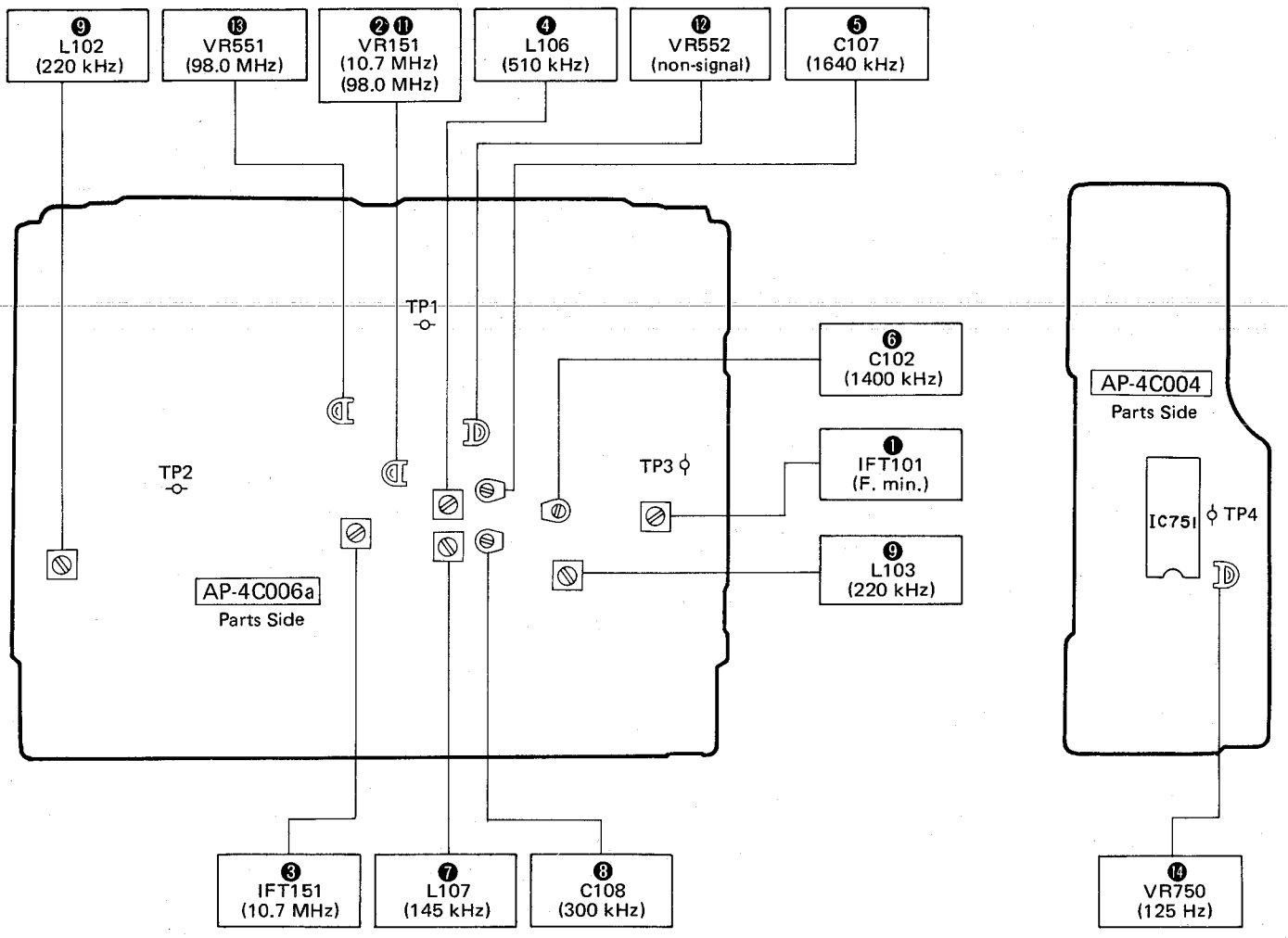


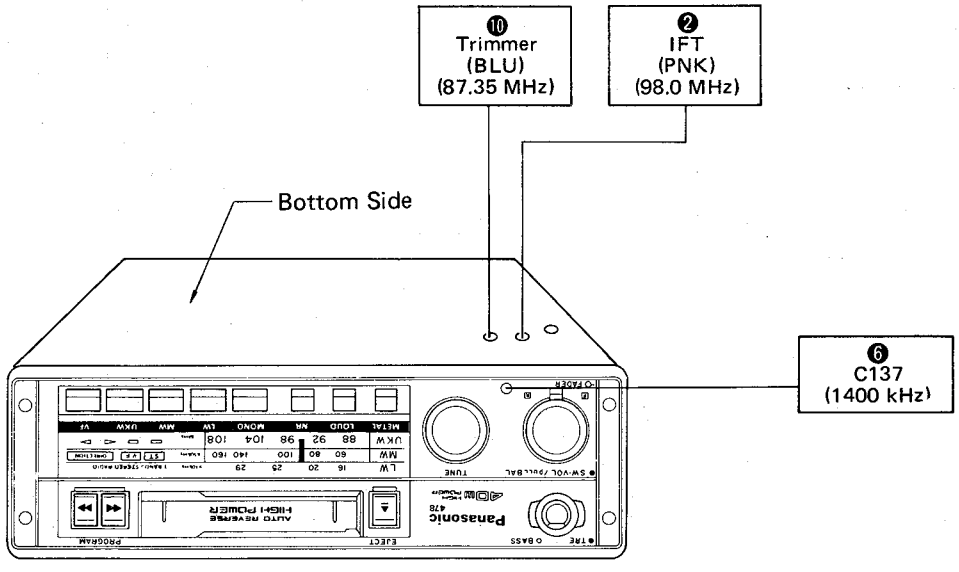
6. BACK PLATE AND INDICATOR P.C.B. REMOVAL

- Remove the dial cord by removing spring.
- Pull out the back plate by pushing two clows.
- Pull out the indicator P.C.B. by pulling two clows.



ALIGNMENT POINTS/ABGLICHPUNKTE



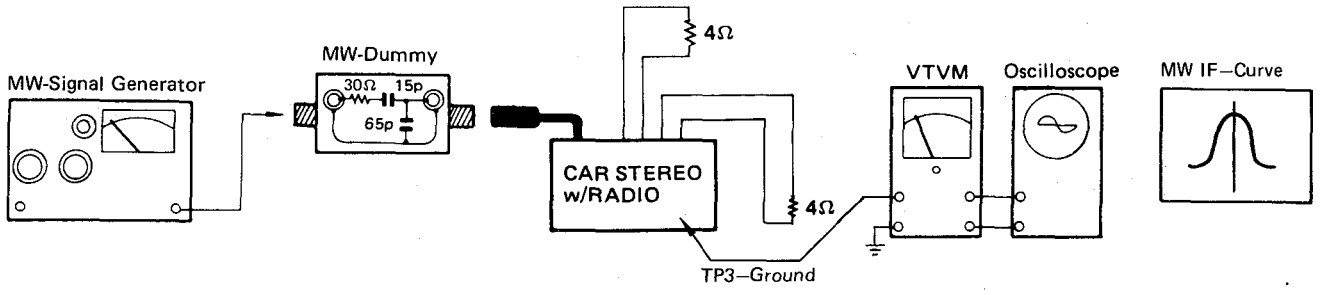


ALIGNMENT INSTRUCTIONS

- Power supply voltage: DC 14.4V
- Output impedance: 4Ω
- Output power: 0.5W
- Balance control: Center
- Volume control: Set for 0.5W output
- Tone control: High
- VF switch: OFF

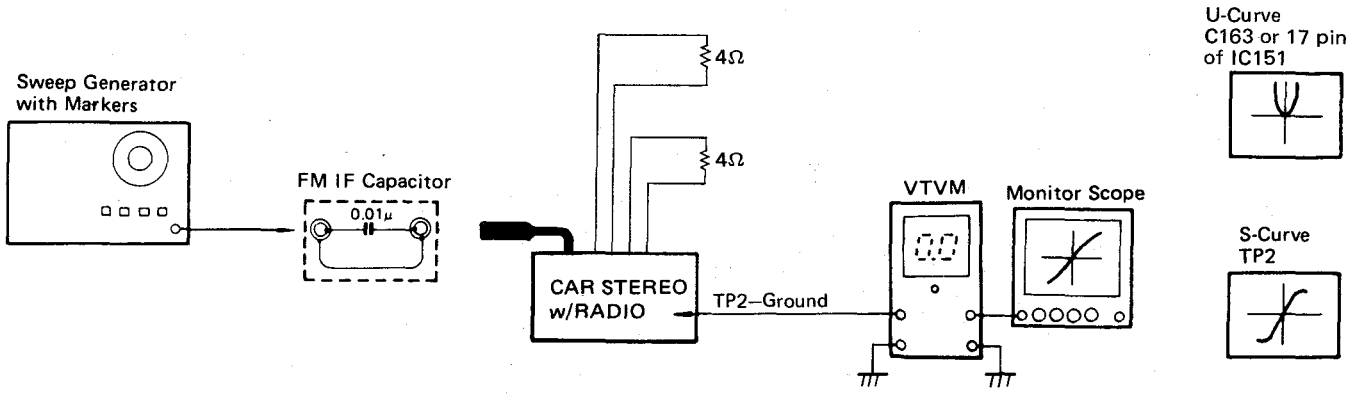
1. MW I-F ALIGNMENT

Step	Alignment Item	Band Selector	Signal Generator	Input Terminal	VTVM Connection	Radio Dial Setting	Adjust	Remarks
1	MW I-F	MW	450 kHz [400 Hz Mod.]	Antenna Receptacle	TP3 – Ground	Low freq. end stop	IFT101	• Adjust for maximum.



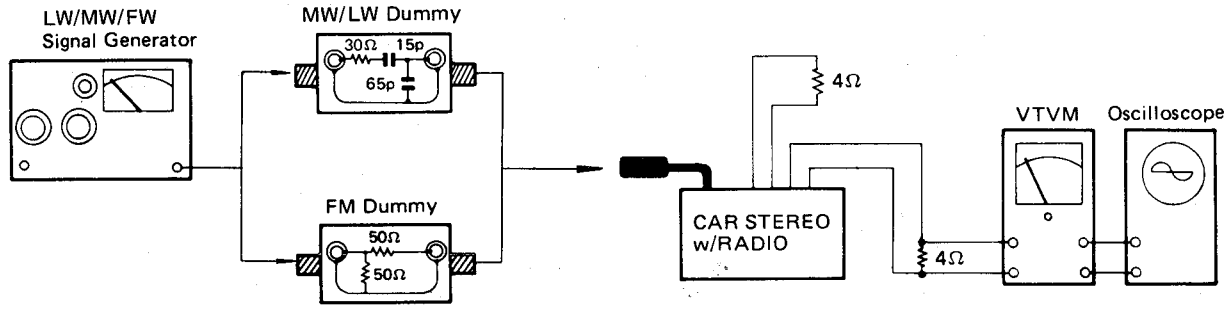
2. FM I-F ALIGNMENT

Step	Alignment Item	Band Selector	Signal Generator	Input Terminal	Monitor Scope Connection	Radio Dial Setting	Adjust	Remarks
2	FM I-F	FM	10.7 MHz	Antenna Receptacle	C163 or ⑰ Pin of IC151 – Ground	Point of non-interference.	IFT (PNK) [FM Front End] (VR151)	• VR151 fully counter-clockwise. • Adjust for maximum amplitude and symmetrical curve.
3					TP2 – Ground		IFT151	• Adjust for maximum amplitude and proper linearity between about ±100 kHz markers.



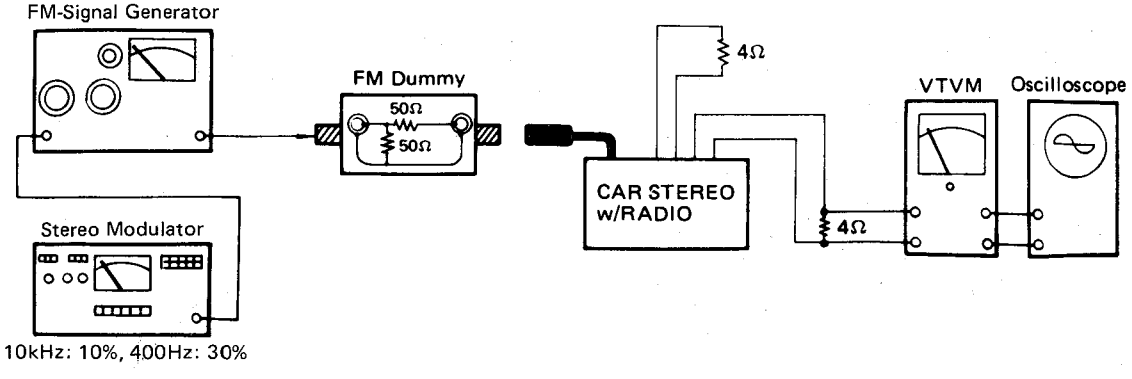
3. MW/LW/FM R-F ALIGNMENT

Step	Alignment Item	Band Selector	Signal Generator	Input Terminal	VTVM Connection	Radio Dial Setting	Adjust	Remarks
4	MW R-F	MW	510 kHz [400 Hz Mod.]	Antenna Receptacle	Speaker Terminals	Low freq. end stop	L106	• Adjust for maximum. • Repeat steps 2 & 3 times, and finish at low frequency of each alignment item.
5			1640 kHz [400 Hz Mod.]			High freq. end stop	C107	
6			1400 kHz [400 Hz Mod.]			Point of non-interference	C102 C137	
7	LW R-F	LW	145 kHz [400 Hz Mod.]	Antenna Receptacle	Speaker Terminals	Low freq. end stop	L107	• Adjust for maximum. • Repeat steps 2 & 3 times, and finish at low frequency of each alignment item.
8			300 kHz [400 Hz Mod.]			High freq. end stop	C108	
9			220 kHz [400 Hz Mod.]			Point of non-interference	L102 L103	
10	FM R-F	FM	87.35 MHz [400 Hz Mod.]	Antenna Receptacle	Speaker Terminals	Point of non-interference	Trimmer (BLU) [FM Front End]	Adjust for maximum.



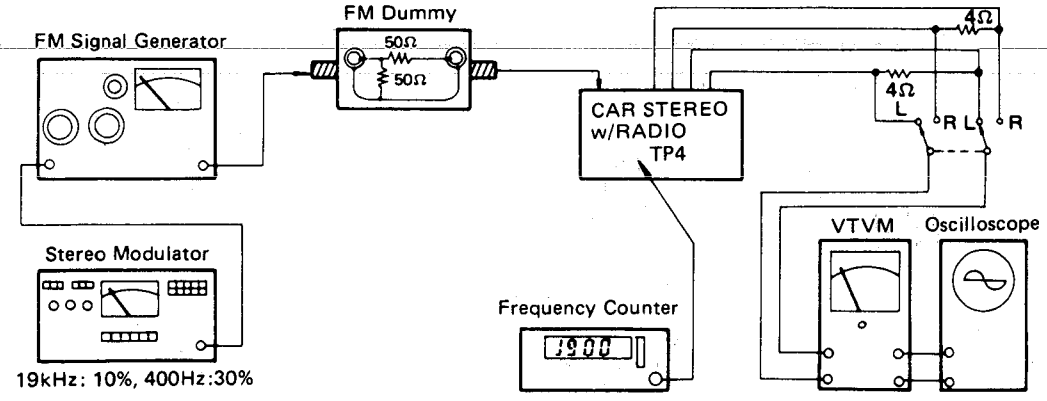
4. FM NOISE RESIDUE ALIGNMENT

Step	Alignment Item	Band Selector	Signal Generator	Input Terminal	VTVM Connection	Radio Dial Setting	Adjust	Remarks
11	FM NOISE	FM	98.0 MHz, 54 dB [400 Hz Mod.]	Antenna Receptacle	Speaker Terminals	Tune to Signal	VR151	• Set volume control for 0.5 W output. • Signal generator input to −4 dB, and adjust for −33 dB down output.



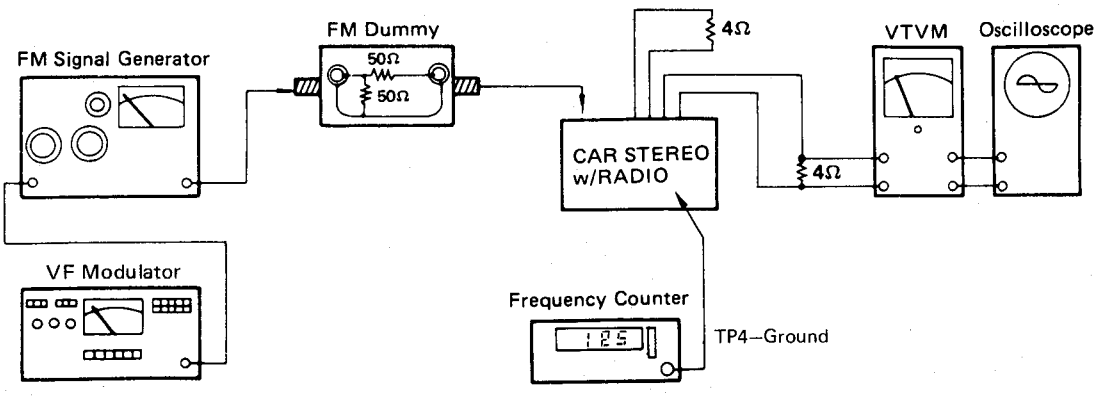
5. FM MULTIPLEX ALIGNMENT

Step	Alignment Item	Band Selector	Signal Generator	Input Terminal	VTVM Connection	Radio Dial Setting	Adjust	Remarks
12	FM MPX	FM	.....	.....	Frequency Counter: (19 kHz) TP1 – Ground	.....	VR552	• Short TP2 and ground. • Adjust for 19 kHz ±30 Hz.
13			98 MHz, 54 dB [400 Hz Mod.]	Antenna Receptacle	Speaker Terminals	Tune to Signal	VR551	• Adjust for maximum separation.



6. VF ALIGNMENT

Step	Alignment Item	Band Selector	Signal Generator	Input Terminal	VTVM Connection	Radio Dial Setting	Adjust	Remarks
14	VF	DK	.....	.....	TP4 – Ground	.....	VR750	• Short TP2 and ground. • Adjust for 125 Hz ±0.5 Hz.

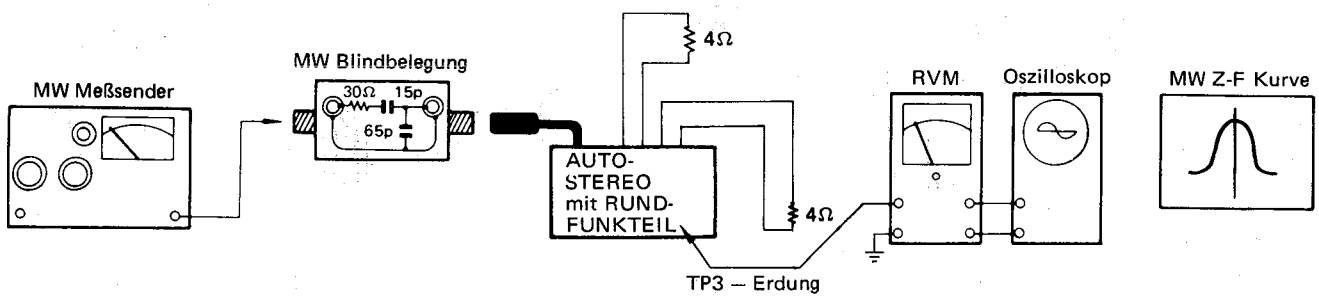


ABGLEICH ANLEITUNG

- Stromspannung: DC 14,4 V
- Ausgangsimpedanz: 4 Ω
- Ausgangsleistung: 0,5 W
- Balanceregler: Mitte
- Lautstärkeregler: Auf 0,5 W einstellen
- Klangregler: Hoch
- VF schalter: OFF

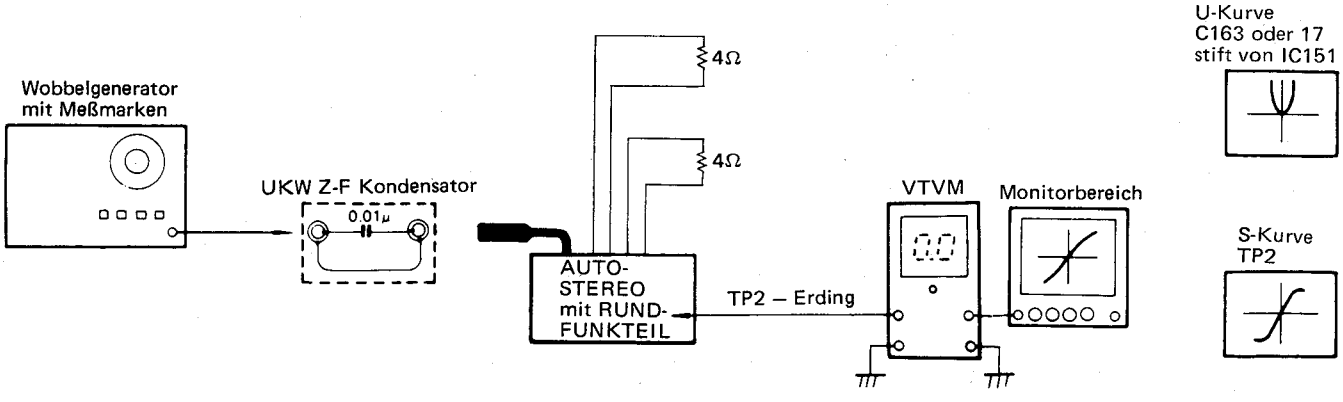
1. ABGLEICH VON MW Z-F

Stufe	Abgleich-objekt	Stellung des Wellenbereich-umschalters	Meßsender-frequenz	Ankopplung des Meßsenders	Anschluß des Anzeige-instruments	Stellung der Abstimmskala	Abgleich	Ammerkung
1	MW Z-F	MW	450 kHz [400 Hz Mod.]	Antennen-steckdose	TP3 — Erdung	Auf Skalenende mit niedrigster Frequenz stellen	IFT101	• Auf maximum stellen.



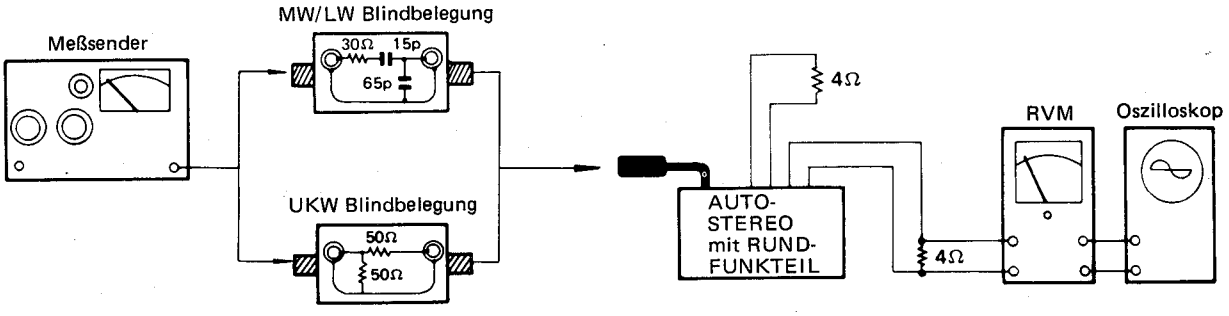
2. ABGLEICH VON FM(UKW) Z-F

Stufe	Abgleich-objekt	Stellung des Wellenbereich-umschalters	Meßsender-frequenz	Ankopplung des Meßsenders	Anschluß des Monitor-bereich	Stellung der Abstimmskala	Abgleich	Ammerkung
2	UKW Z-F	UKW	10,7 MHz	Antennen-steckdose	C163 oder ⑰ stift von IC151 — Erdung	Auf eine nicht interferierende Stelle stellen	IFT (Rosa) UKW Tuner (VR151)	• VR151 auf völliz Uhrzeigersinn einstellen. • Auf maximale Amplitude und symmetrische Kurve einstellen.
3					TP2 — Erdung	Auf eine nicht interferierende Stelle stellen	IFT151	• Auf maximale Amplitude korrekte Linearität zwischen ±100 kHz einstellen.



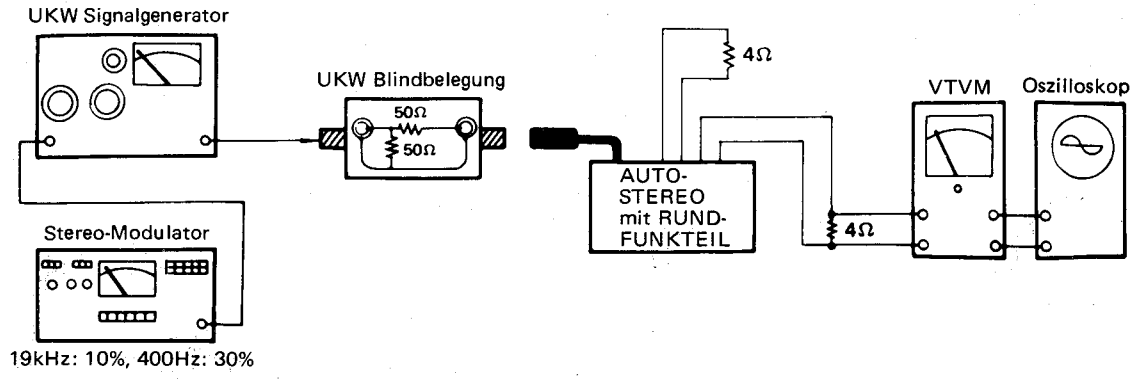
3. ABGLEICH VON AM(MW) ZF UND HF

Stufe	Abgleich-objekt	Stellung des Wellenbereich-umschalters	Meßsender-frequenz	Ankopplung des Meßsenders	Anschluß des Anzeigeinstruments	Stellung der Abstimmskala	Abgleich	Ammerkung
4	AM H-F	MW	510 kHz [400 Hz Mod.]	Antennen-steckdose	Lautsprecher-anschlüsse	Auf Skalenende mit niedrigster Frequenz stellen	L106	• Auf maximum stellen. • Die schritte 2 und 3 mal wiederholen und bei der hohen Frequenz für jeden Ableichpunkt aufhören.
5			1640 kHz [400 Hz Mod.]			Auf Skalenende mit höchster Frequenz stellen	C107	
6			1400 kHz [400 Hz Mod.]			Auf eine nicht interferierende stelle stellen	C102 C137	
7	LW H-F	LW	145 kHz [400 Hz Mod.]	Antennen-steckdose	Lautsprecher-anschlüsse	Auf Skalenende mit niedrigster Frequenz stellen	L107	• Auf maximum stellen. • Die schritte 2 und 3 mal wiederholen und bei der hohen Frequenz für jeden Ableichpunkt aufhören.
8			300 kHz [400 Hz Mod.]			Auf Skalenende mit höchster Frequenz stellen	C108	
9			220 kHz [400 Hz Mod.]			Auf eine nicht interferierende stelle stellen	L102 L103	
10	UKW H-F	UKW	87.35 MHz [400 Hz Mod.]	Antennen-steckdose	Lautsprecher-anschlüsse	Auf eine nicht interferierende Stelle stellen	Trimmer (BLAU) UKW Tuner	• Auf maximum stellen.



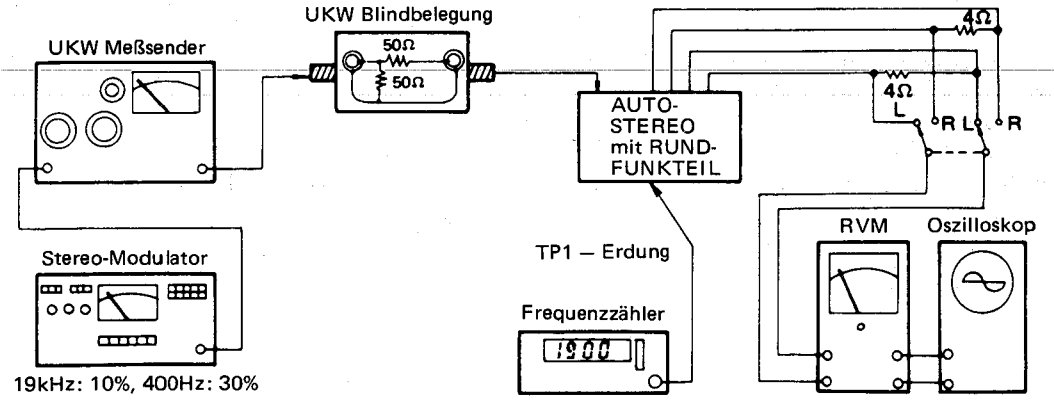
4. FM(UKW)-RAUSCHABGLEICH

Stufe	Abgleich-objekt	Stellung des Wellenbereich-umschalters	Meßsender-frequenz	Ankopplung des Meßsenders	Anschluß des Anzeige-instruments	Stellung der Abstimmskala	Abgleich	Ammerkung
11	UKW RAUSCH	UKW	98,0 MHz 54 dB [400 Hz Mod.]	Antennen-steckdose	Lautsprecher-anschlüsse	Auf Signalfrequenz einstellen	VR151	• Den Lautstäkeregler auf 0,5 W einstellen. • Das Signal zu −4 dB gedämpft wird, und auf −33 dB.



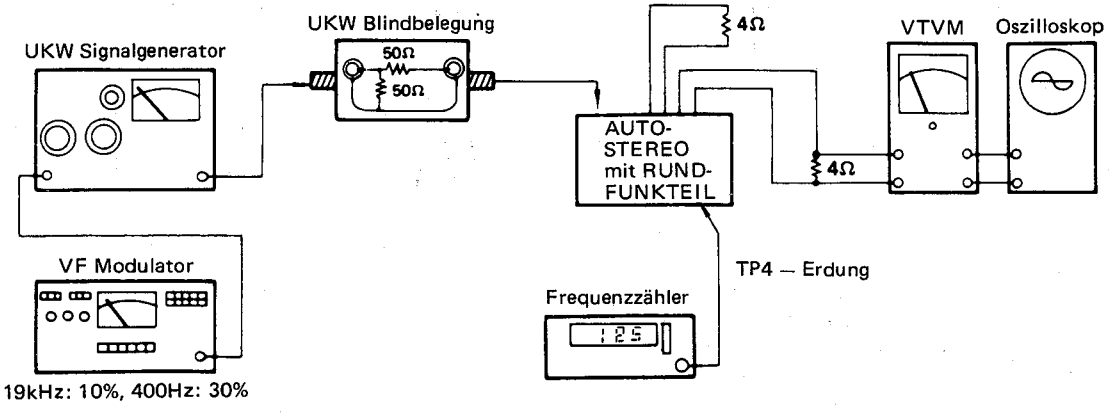
5. ABGLEICH VON UKW-MULTIPLEX

Stufe	Abgleich-objekt	Stellung des Wellenbereich-umschalters	Meßsender-frequenz	Ankopplung des Meßsenders	Anschluß des Anzeige-instruments	Stellung der Abstimmskala	Abgleich	Ammerkung
12	UKW MPX	UKW	.....	.....	Frequenz Aähler (19 kHz) TP1 — Erdung	.....	VR552	• Kurzschliessen TP2 und Erdung. • Auf 19 kHz ±30 kHz einstellen.
13			98,0 MHz 54 dB [400 Hz Mod.]	Antennen-steckdose	Lautsprecher-anschlüsse	Auf Signal-frequenz einstellen	VR551	• Auf maximale Trennung einstellen.



6. ABGLEICH VON VF

Stufe	Abgleich-objekt	Stellung des Wellenbereich-umschalters	Meßsender-frequenz	Ankopplung des Meßsenders	Anschluß des Anzeige-instruments	Stellung der Abstimmskala	Abgleich	Ammerkung
14	VF	DK	.....	.....	TP4 — Erdung	.....	VR750	• Verkürzen dazwischen TP2 und Erdung. • Auf 125 Hz ±0,5 Hz einstellen.



TRAFIC INFORMATION SYSTEM/VERKEHRS-AUSKUNFTSYSTEM

1. SK System

The FM station transmitting traffic information has a sub-carrier of specific frequency (57 kHz) and sends out broadcast wave of main-carrier frequency-modulated from the sub-carrier. On the receiving station, a muting decoder is incorporated into a radio receiver to detect this 57 kHz frequency while preventing reception of broadcast waves from other stations (stations not transmitting traffic information).

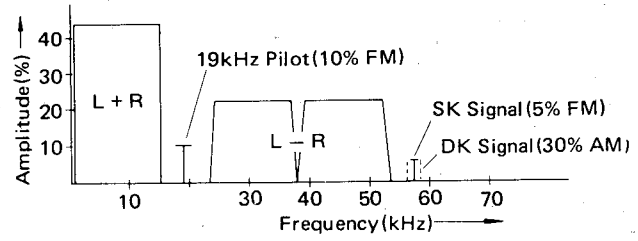
2. DK System

Only when transmitting traffic information at a frequency other than 57 kHz (normal), the FM station sends out the main-carrier which has been frequency modulated from the sub-carrier amplitude-modulated at 125 Hz. The receiving station incorporates a decoder into a radio receiver and the decoder detects 125Hz on 57kHz frequency to enable hearing of only traffic information. When the radio receiver is equipped with a tape player, reception of traffic information (with the receiver tuned to the traffic information transmitting station) during tape play will shut off tape playing for the priority on the hearing of traffic information.

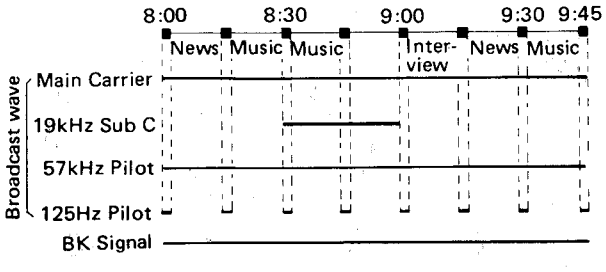
3. BK System

This system is an improved version of the system of above 2-2. The entrie area of West Germany is divided into six blocks of A, B, C, D, E, and F. The FM station in each block has a frequency (57 kHz/integer) respectively of 23.75 Hz, 28.27 Hz, 34.93 Hz, 39.58 Hz, 45.67 Hz, and 53.98 Hz as an area signal. The frequency is amplitude modulated at 57 kHz with a modulation ratio of 60%. The receiving station can select the block by a selector switch (e.g., BK reception at "A" for the block A). Once the receiver is set to the traffic information transmitting FM station in a required block, it can receive detailed traffic information for the selected block. In order to detect the area signal from 23.75 - 53.98 Hz of each block, the radio receiver generally employs the method of dividing 57 kHz by 1/2400 - 1/1056 and of detecting by phase this signal and area signal on 57 kHz frequency.

4. Frequency Spectrum



5. Program & Main/Sub Carrier of Traffic Information FM Station



1. Das SK System

Der Verkehrsauskunft gebende UKW Rundfunksender hat einen Hilfsträger mit spezifischer Frequenz (57 kHz) und sendet eine Hauptträger-Rundfunkwelle aus, die von dem Hilfsträger frequenzmoduliert ist. An der Empfangsstation ist ein Stummabstimmungs-Dekodierer in einen Empfangsapparat eingebaut zur Entdeckung dieser 57 kHz Frequenz, der die Aufnahme von Rundfunkwellen anderer Sender (Sender die keine Verkehrsauskunft übermitteln) verhindert.

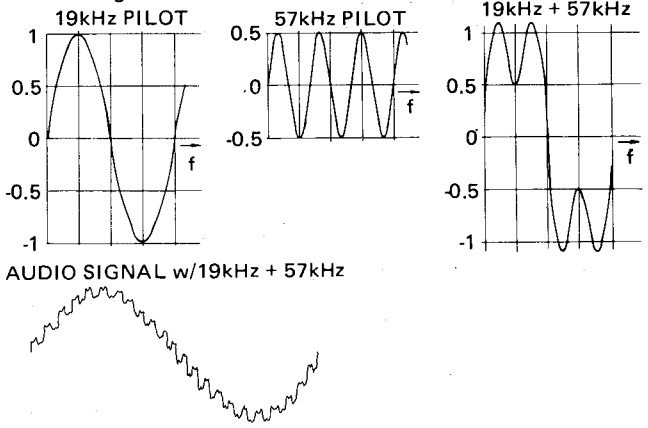
2. Das SK System

Der UKW Rundfunksender sendet nur dann eine Hauptträger-Rundfunkwelle, die von einer von 125 Hz amplitudenmodilierter Frequenz mit dem Hilfsträger frequenzmodiliert wurde, aus wenn Verkehrsauskunft mit einer anderen als der normalen 57 kHz-Frequenz übermittelt wird. An der Empfangsstation ist ein Stummabstimmungs Dekodierer eingebaut und mit diesem Dekodierer kann man Frequenzen von 125 Hz oder 57 kHz entdecken, damit nur Verkehrsauskunft gehört wird. Wenn der Radioempfänger mit einem Tonbandgerät versehen ist wird die Aufnahme von Verkehrsauskunft (wenn der Empfänger auf eine Verkehrsauskunft sendende Station eingestellt ist) am Tonband abgestellt, um dem Hören von Verkehrsauskunft Vorzug zu geben.

3. Das BK System

Dieses System ist eine verbesserte Darstellung des oben beschriebenen 2-2 Systems. Das ganze Gebiet der Bundesrepublik Deutschland ist auf sechs Zonen A, B, C, D, E und F eingeteilt. Der UKW Rundfunksender in jeder Zone hat ein 57 kHz/Ganzzahl Frequenz von bzw. 23.75 Hz, 28.27 Hz, 34.93 Hz, 39.58 Hz, 45.67 Hz und 53.98 Hz als Bezirk-Signal. Die Frequenz ist bei 57 kHz mit einem Modulationswert von 60% amplitudenmoduliert. Die Empfangsstation kann eine Zone mit einem Wahlschalter wählen (z.B. BK Empfang an Stellung "A" för die A Zone). Wenn der Empfänger auf die Vekehrsauskunft sendende UKW Rundfunkstation in einer gewünschten Zone eingestellt ist, kann ausführliche Verkehrsauskunft über doe gewählte Zone empfangen weden. Um das Bezirksignal von 23.75 bis 53.98 Hz in jeder Zone zu entdecken, wird bei dem Empfänger eine Methode verwendet in welcher 57 kHz mit 1/2400 bis 1/1056 divediert wird und das Signal und Bezirksignal auf der 57 kHz Frequenz mit Phasendetektion vorgenommen wird.

6. Pilot Signal



7. Traffic Area Identification

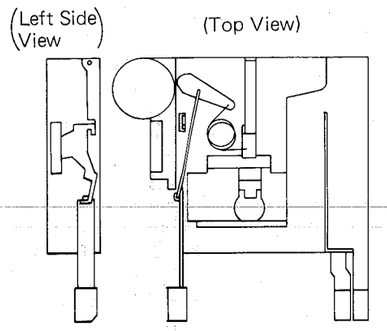
Area	Frequency	Ratio	Area	Frequency	Ratio
A	23.75Hz	2400	D	39.58Hz	1440
B	28.27Hz	2016	E	45.67Hz	1248
C	34.93Hz	1632	F	53.98Hz	1056

OPERATION OF AUTO-REVERSE CASSETTE DECK/BETRIEB DES

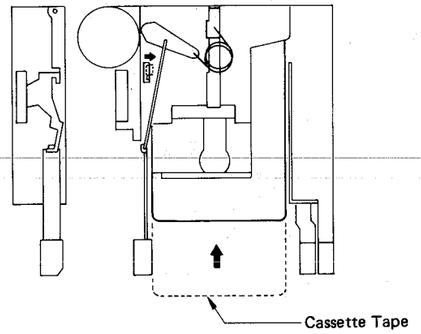
PLAY OPERATION

1 2

No Loaded

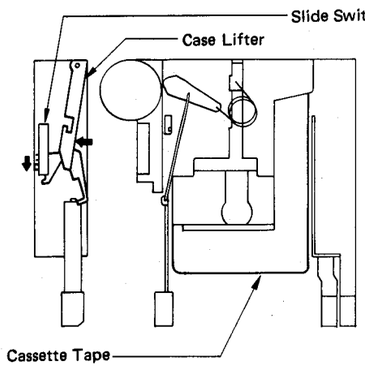


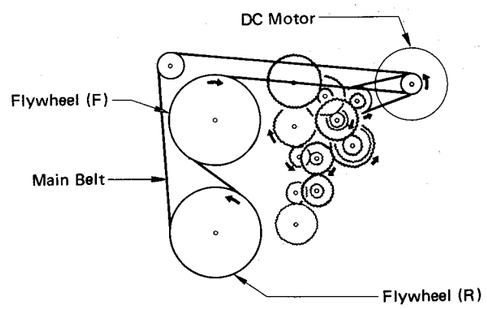
Inserting Cassette Tape



3 **Play Operation Running System**

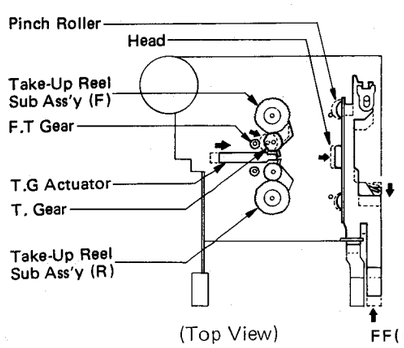
Cassette Tape Loaded



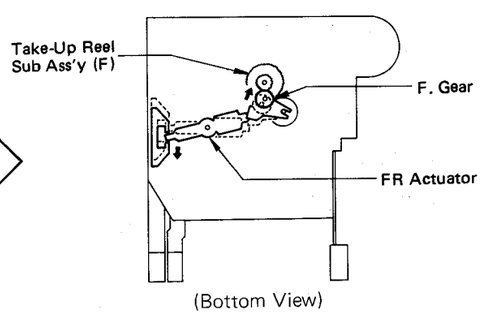


FF (▶▶) RUNNING

1 2



Depressing the FF(▶▶) Button, the Head and the Pinch Roller move to back, and take off the T.Gear.

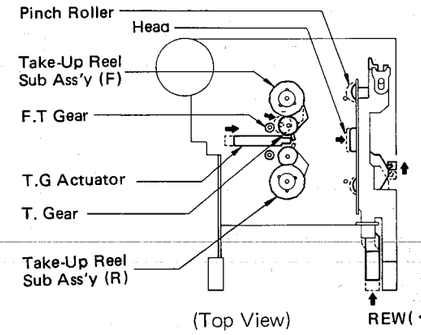


The FR Actuator moves to rotate directly the gear of the Take-Up Reel Sub Ass'y (F).

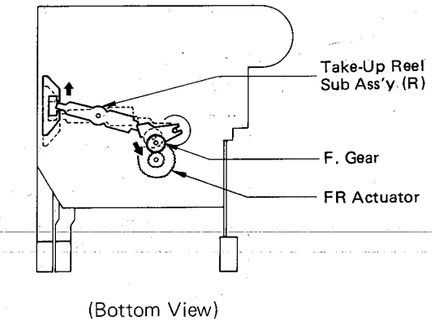
CASSETTENDECK MIT AUTO MATISCHER BANDLAUFUMKEHR

REW (◀◀) RUNNING

1 2



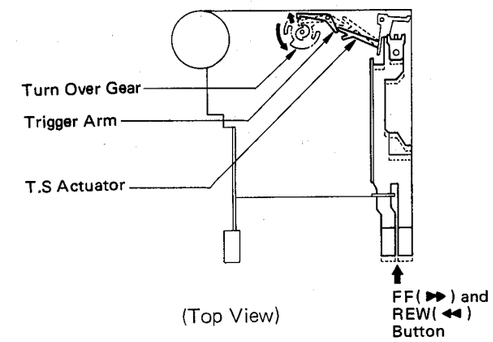
Depressing the REW(◀◀) Button, the Head and the Pinch Roller move to back and take off the T. Gear.



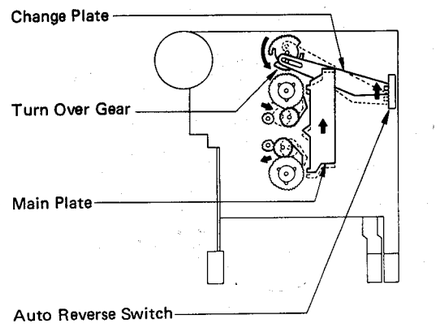
The FR Actuator moves to rotate directly the gear of the Take-Up Reel Sub Ass'y (R).

PROGRAM SWITCHING

1 2

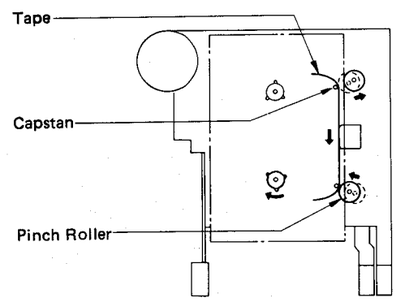


Depressing both FF(▶▶) and REW(◀◀) Button, the Trigger Arm takes off and half rotate the Turn Over Gear.

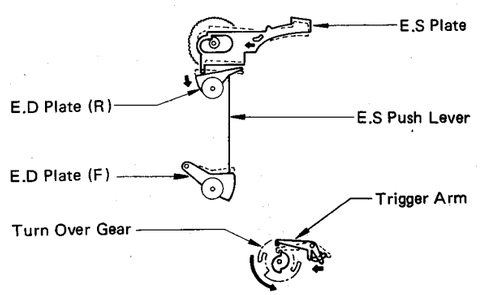


The Main Plate moves, and the T. Gear touches the reverse gear of the Take-Up Reel Sub Ass'y, and the Auto Reverse Switch is reversed.

3 **Auto Reverse System**



The rotation of the Pinch Roller is reversed and the tape direction is reversed.

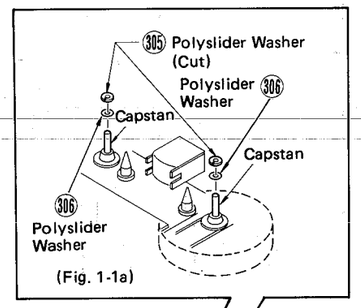


If the loading tape is end stopped, the Trigger Arm is took off for the move of the E.D Plate and half rotate the Turn Over Gear. Then, the tape direction is reversed above 2 and 3 operation.

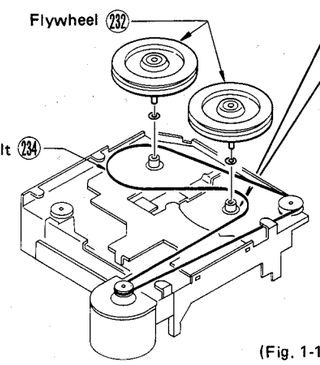
SERVICING OF CASSETTE DECK/WARTUNG SHINWEISE FÜR DAS CASSETTE

1. REPLACEMENT OF FLYWHEELS AND MAIN BELT

1) Remove the Polyslider Washer (305) (306) from the Capstans. (Fig. 1-1a)
2) Remove the Main Belt (234). (Fig. 1-1)
3) Pull out the Flywheels (232). (Fig. 1-1)



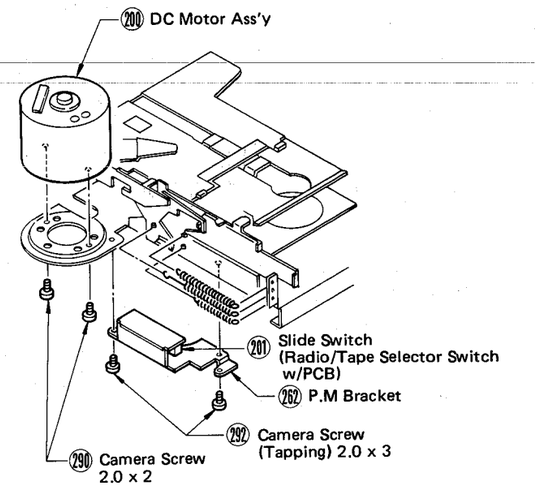
(Fig. 1-1a)



(Fig. 1-1)

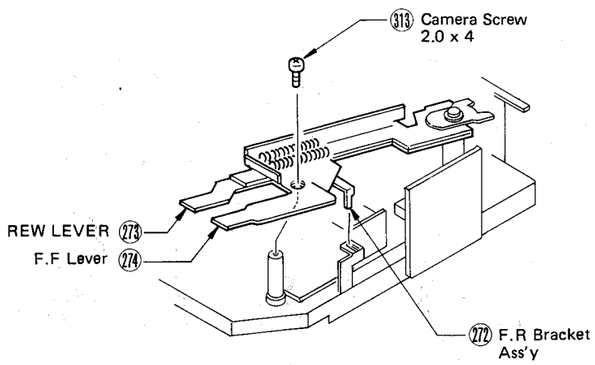
2. REPLACEMENT OF DC MOTOR

1) Remove the DC Motor Ass'y (200) by two Camera Screws (290). (Fig. 2)
2) Remove the Slide Switch (Radio/Tape Selector Switch w/PCB) (201) and P.M Bracket (262) by two Camera Screws (Tapping) (292).

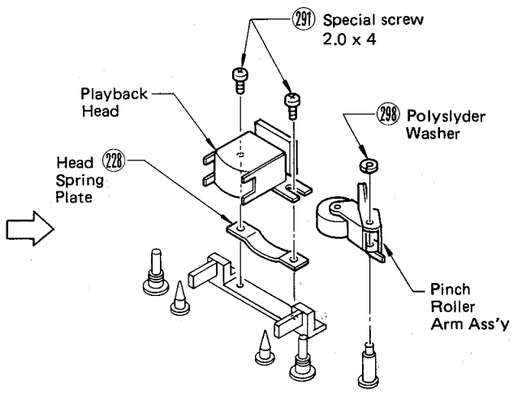

(200) DC Motor Ass'y
(201) Slide Switch (Radio/Tape Selector Switch w/PCB)
(262) P.M Bracket
(292) Camera Screw (Tapping) 2.0 x 3
(290) Camera Screw 2.0 x 2
(Fig. 2)

3. REPLACEMENT OF PLAYBACK HEAD AND PINCH ROLLERS

1) Remove the REW Lever (273), F.F Lever (274) and F.R Bracket Ass'y (272) by a Camera Screw (313). (Fig. 3-1)
2) Remove the Playback Head by two Special Screws (291) (Fig. 3-2)
3) Remove the Polyslider Washers (298) and Pinch Roller Arm Ass'y. (Fig. 3-2)



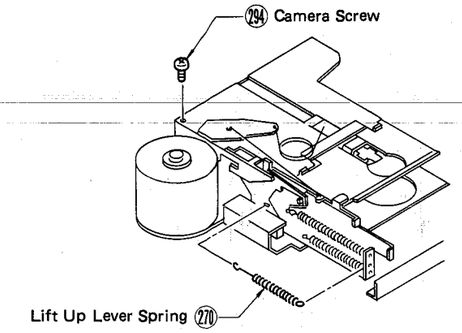
(Fig. 3-1)



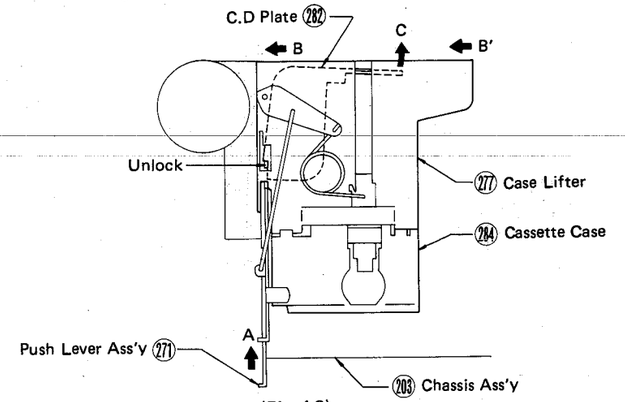
(Fig. 3-2)

4. CASSETTE CASE DISASSEMBLY

1) Remove the camera screw (294). (Fig. 4-1)
2) Remove the Lift Up Lever Spring (270). (Fig. 4-1)
3) Remove the Push Lever Ass'y (271) from the support by pushing it into direction A indicated by an arrow (Fig. 4-2) to an overstroke position and slide Case Lifter (277) to the left (into direction B – B' indicated by an arrow in the Fig. 4-2. (At this time, the Push Lever should be kept pressed.)
4) Unlock the Chassis Ass'y (203) and the C.D Plate (282). (It comes off from the Chassis Ass'y by clockwise rotation (into direction C indicated by an arrow in the Fig. 4-2). Slowly put the Push Lever back in its place and down the Cassette Case (284). Push the Push Lever up again, and the cassette case comes up, remove by lifting it.



(Fig.4-1)



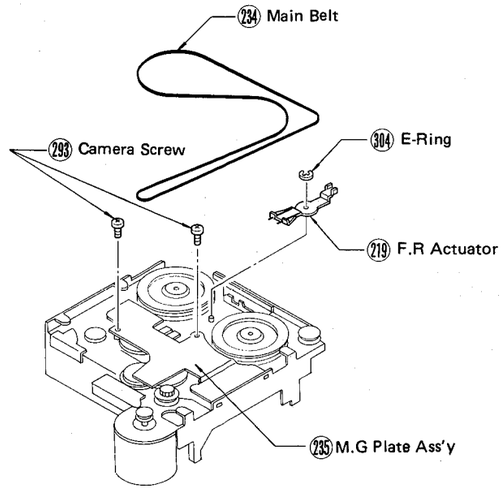
(Fig. 4-2)

5. M.G PLATE ASS'Y DISASSEMBLY AND REPLACEMENT OF CLUTCH BELT

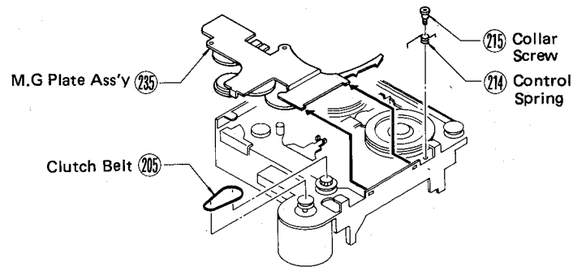
1) Remove the Main Belt (234). (Fig. 5-1)
2) Remove the two camera screws (M2 x 3.5) (293). (Fig. 5-1)
3) Remove the E-Ring (304) and dislocate the F.R Actuator (219). (Fig. 5-1)
4) Remove the M.G Plate Ass'y (235). (Fig. 5-2)

Note: 1) This work is much easier in the Eject state than in the Reverse Play state.
2) Installation work is much easier when the Control Spring (214) and Collar Screw (215) (Fig. 5-2), T.G Actuator (224) and E-Ring (304) Main Plate (208), E-Ring (301) and E-Ring (304) are removed. (Fig. 5-3)

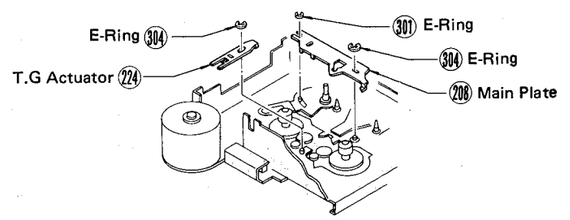
5) Remove the Clutch Belt (205). (Fig. 5-2)



(Fig. 5-1)



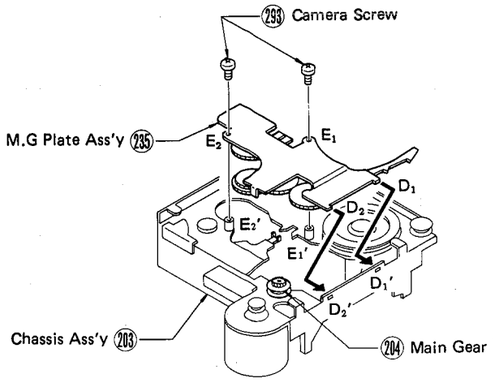
(Fig. 5-2)



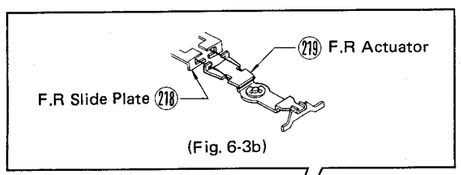
(Fig. 5-3)

6. M.G PLATE ASS'Y INSTALLATION

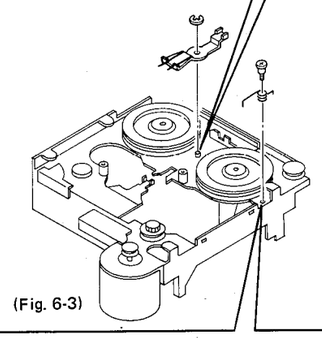
1) Pass bosses D1 and D2 of the M.G Plate Ass'y (235) through square holes D1' and D2' of the Chassis Ass'y (203) (D1 – D1', D2 – D2'). (Fig. 6-1)
2) Insert the boss of the Turn Over Gear (254) into the hole of the Turn Over Gear Collar (261) which is placed in the groove of the Change Plate Ass'y (206). (Fig. 6-2a)
3) Engage holes E1 and E2 of the M.G Plate Ass'y with studs E1' and E2' of the Chassis Ass'y and slightly press them down. (Fig. 6-1)
4) Rotate the Main Gear (204) (or the Motor Pulley) so that gears are engaged well.
5) Press FF and REW Levers at the same time to fix aground of the T.S Actuator (210). When the M.G Plate Ass'y is put back in its specified place, fix it with two camera screws (293). (Fig. 6-1)

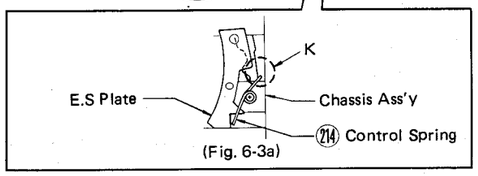


(Fig. 6-1)



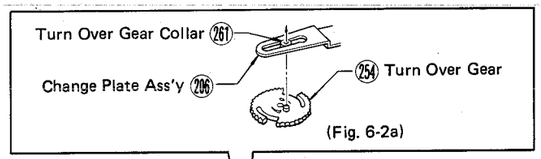
(Fig. 6-3b)


(Fig. 6-3)

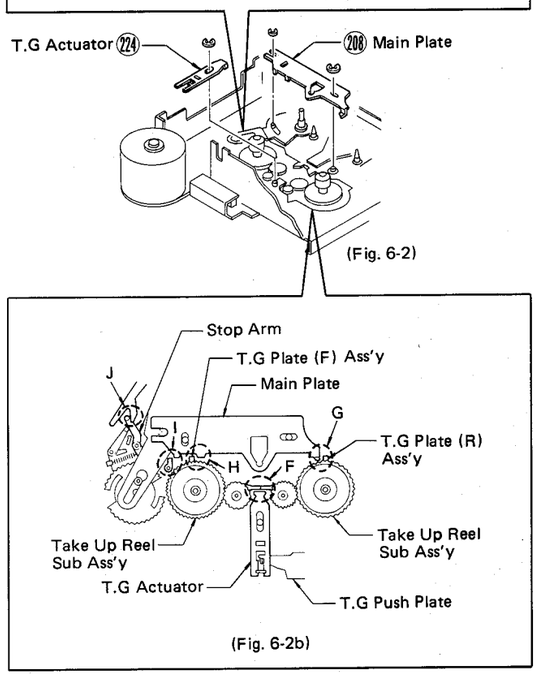


(Fig. 6-3a)

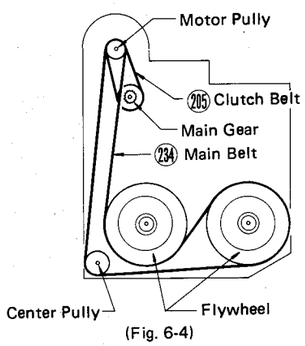
6) Install the T.G Actuator (224). (Fig. 6-2)
7) Install the Main Plate (208). (Fig. 6-2)
   Note: After installation, confirm the relation of position F ~ J in the Fig. 6-2b.
8) Install the Control Spring (214). Insert it in between the F.R Lock Plate (211) and the Chassis Ass'y. (Portion K in the Fig. 6-3a).
9) Install a F.R Actuator (219). (Set one side in the groove of the F.R Slide Plate (218). (Fig. 6-3b)
10) Install the Main Belt.
    Note: Re-install the Main Belt (234) and the Clutch Belt (205) as shown Fig. 6-4.



(Fig. 6-2a)



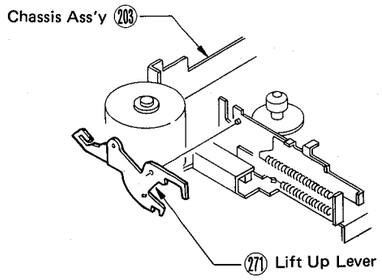
(Fig. 6-2)
(Fig. 6-2b)



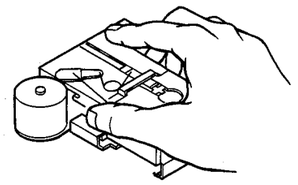
(Fig. 6-4)

7. CASSETTE CASE INSTALLATION

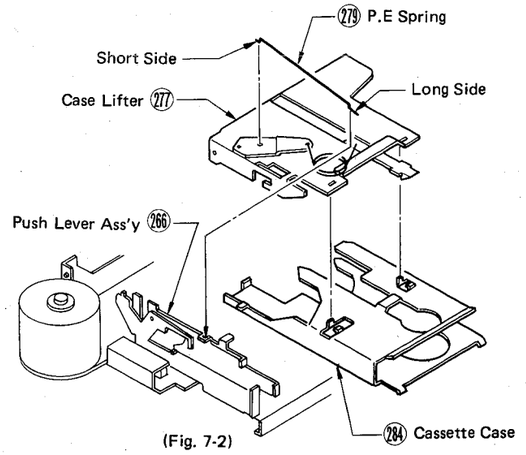
1) Insert the boss of the Chassis Ass'y (203) into the notch of the Lift Up Lever (271). (Fig. 7-1)
2) Engage the Cassette Case (284) with the Case Lifter (277) and mount a P.E Spring (279). (Fig. 7-2)
   Note: Make sure to mount the P.E Spring correctly by paying attention to the length.
3) Insert the P.E Spring into the hole of the Push Lever Ass'y (266). (Fig. 7-2)
4) Slightly press it down so that the Lift Up Lever does not come off from the boss of the Chassis Ass'y (Fig. 7-3a) and push the Cassette Case into direction L indicated by an arrow to place it in the specified position as shown in the Fig. 7-3b.
5) Move the C.D Plate (282) into direction M shown in the Fig. 7-3b and press the Cassette Case down.



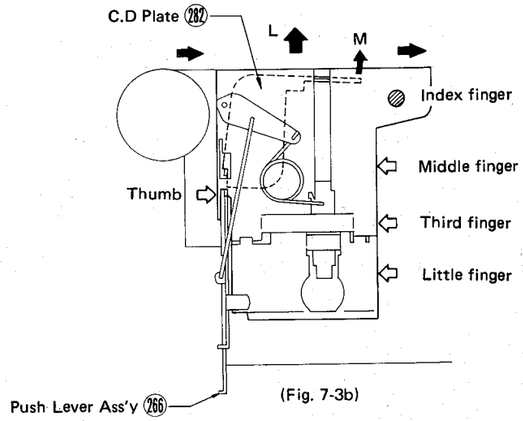
(Fig. 7-1)


Slightly press the Chassis Ass'y
(Fig. 7-3a)

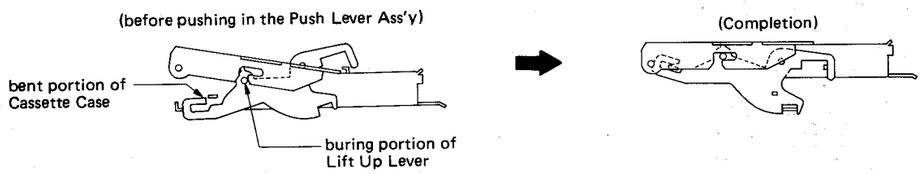
6) Press the Push Lever Ass'y (266) to an overstroke position, the Cassette Case comes up. Match the support hole of the Case to the boss of the Chassis Ass'y and when inserting, move toward the right at the same time. (Fig. 7-3b)
   Note: At this time, the burring portion of the Lift Up Lever should be set in the groove of the Case Lifter. Further, the bent portion of the Cassette Case should be set in the groove of the Lift Up Lever. It can be inserted smoothly when the Push Lever is pressed by lifting up the opening of the Cassette Case. (Fig. 7-4)
7) Mount the camera screw (294). (Refer to Fig. 4-1)
8) Mount the Lift Up Lever Spring (270). (Refer to Fig. 4-1)



(Fig. 7-2)



(Fig. 7-3b)



(Fig. 7-4)

REPLODED VIEW(UNIT)/AUFGELÖSTE DARSTELLUNGS(GANZES GERÄT)

■ Numbers in ○ are indicated REF. No. in the REPLACEMENT PARTS LIST.

■The symbols next to the screws indicate as follows.

M128	◎	YEJT034C001	⊕Screw, Cuptight	3mmφ×6mm
M129	※	XSB3+4FXS	⊕Screw, Bind	3mmφ×4mm
M130	⊙	XSB3+6FFXS	⊕Screw, Tapping	3mmφ×6mm
M131	▲	XSB26+3FXS	⊕Screw, Bind	2.6mmφ×3mm
M143	◈	XSS3+6FXS	⊕Screw, Flush	3mmφ×6mm
M150	★	YEJS064C001	⊕Screw, Cuptight	3mmφ×6mm

CN201(J)
DECK ASS'Y
CP751(P)
VF PCB
AP-4C004
CP752(P)
VR251, 252, 352
CP750(P)
F701:3A
IC253
INDICATOR PCB
AP-4C006
C137
CN751(J)
CN750(J)
D51
CN752(J)
PL701
SW701
VR257, 357
M50
TUNER ASS'Y
L701
RADIO PCB
AP-4C006
CP201(P)

Replacement Parts List
Model NO. CQ-474EG

NOTES:

1. Be sure to make your orders of replacement parts according to this list.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. Next to the Ref. No. in the parts list is a location key, to show the general location of the parts shown in the exploded drawing, as in a road map.

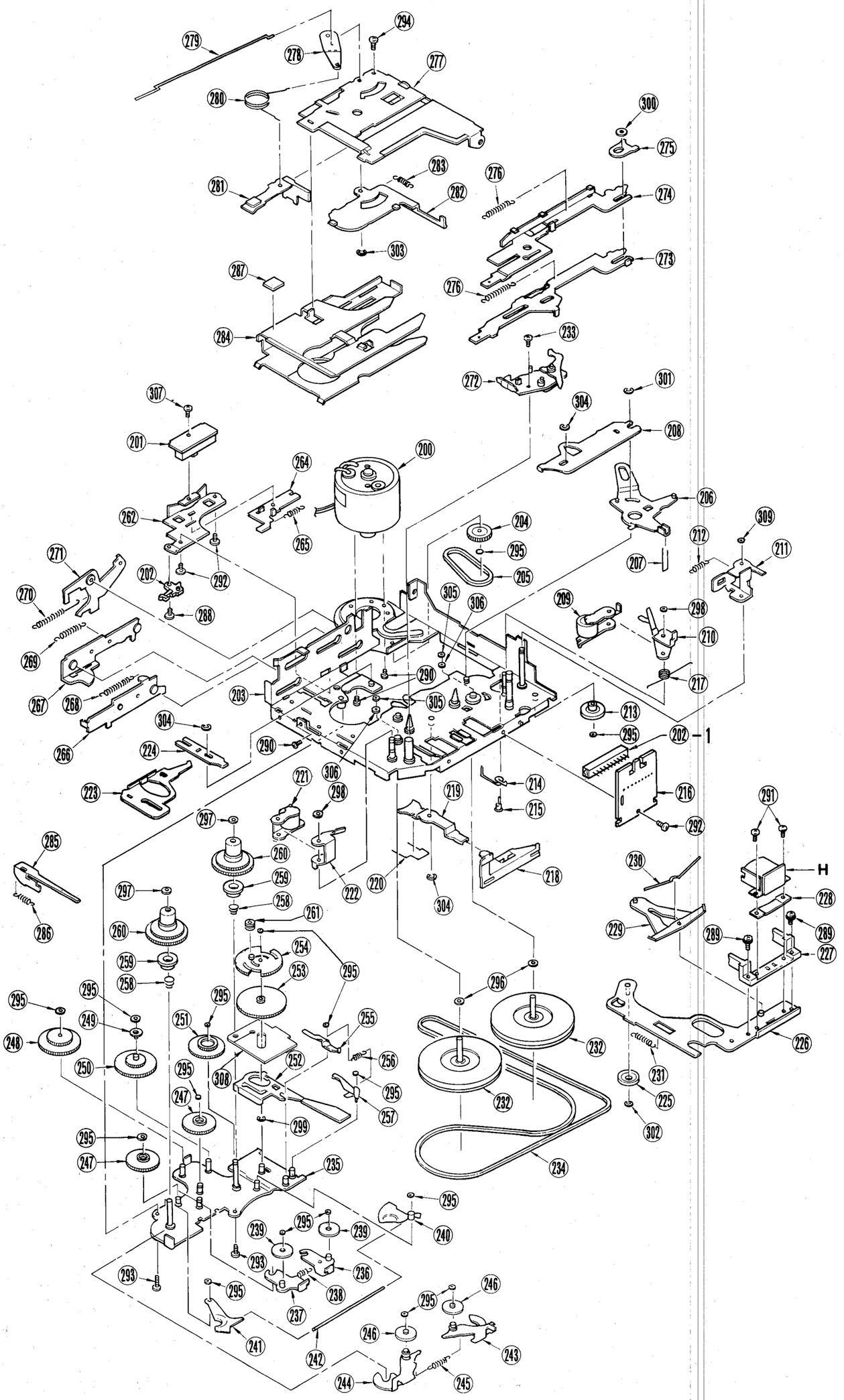
Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
MISCELLANEOUS				
⚠ F701 (3-C)	XBB1C30NR1	Fuse, 3A	1	
D51 (2-B)	ERZD03DS331	Varistor	1	
PL701 (1-A)	YEAL34C001	Pilot Lamp	1	
CN201(J) (2-B)	EMCM1012D61	10P Jack	1	
CP201(P) (1-B)	EMCS1052M	10P Plug	1	
CN750(J) (2-B)	EMCM0610D61	6P Jack	1	
CP750(P) (2-B)	EMCS0652M	6P Plug	1	
CN751(J) (2-B)	EMCM0912D61	9P Jack	1	
CP751(P) (2-B)	EMCS0952M	9P Plug	1	
CN752(J) (1-A)	EMCM0412D61	4P Jack	1	
CP752(P) (2-B)	EMCS0452M	4P Plug	1	
M101 (3-B)	YEAA10023	Antenna Receptacle	1	
M102 (2-A)	YEFC024C010	Escutcheon Ass'y	1	
M103 (4-C)	YEFA034C003	Upper Cover	1	
M104 (1-C)	YEFA054C002	Bottom Cover	1	
M105 (2-C)	YEFA094C005	Side Plate	1	
M106 (3-A)	YEFA094C006	Side Plate	1	
M107 (2-B)	YEFA074C001	Front Plate	1	
M108 (3-C)	YEFA084C002	Rear Plate	1	
M109 (2-A)	RDZ03YA	Dial Rope (30cm)	1	
M110 (3-B)	YEFX0214C014	Mounting Bracket	1	
M111 (3-B)	YEFX0214C015	Mounting Bracket	1	
M112 (2-B)	YEFX0214C016	Mounting Bracket	1	
M113 (2-B)	YEFX0214C018	Mounting Bracket	1	
M114 (3-B)	YEFX0214C005	Mounting Bracket for IC	1	
M116 (4-A)	YEFX0464C001	Lever, Eject	1	
M117 (2-B)	YEFX0054C001	Spring	1	
M118 (1-B)	YEFA134C001	Case for L701	1	
M119 (2-C)	YEFX0074C001	Cord Clamper	1	
M120 (1-C)	YEFV014C002	Insulator	1	
M121 (2-A)	YEFJ104C002	Back Plate	1	
M122 (1-A)	YEFK04341-	Holder, Pilot Lamp	1	
M123 (2-A)	YEFH014C002	Dial Pointer	1	
M124 (3-A)	YEFE134C009	Button, Tape (▶▶)	1	
M125 (3-A)	YEFE134C010	Button, Tape (◀◀)	1	
M126 (3-A)	YEFE134C008	Button, Eject	1	
M127 (2-A)	YEFE134C006	Button, Band Selector, VF and MONO Switch	5	
M128 ◎	YEJT034C001	⊕ Screw, Cuptight 3mmø x 6mm	6	
M129 ⊛	XSB3 + 4FXS	⊕ Screw, Bind 3mmø x 4mm	4	
M130 ⊙	XTB3 + 6FFXS	⊕ Screw, Tapping 3mmø x 6mm	13	
M131 ▲	XSB26 + 3FXS	⊕ Screw, Bind 2.6mmø x 3mm	1	
M132 (3-C)	YEAJ124C002	Antenna Cord	1	
M133 (3-C)	YEAJ014C004	Power Supply Cord	1	
M134 (4-A)	XWA26BFX	Spring Washer	1	
M135 (3-C)	YEAJ04340B	Speaker Cord (Lch)	1	
M136 (3-C)	YEAJ04341B	Speaker Cord (Rch)	1	
M137 (4-C)	YEFX9994C004	Stopper	1	
M138 (2-B)	YEJN014C002	Nut, Hexagon	1	
M139 (3-C)	XNG5AFXS	Nut	1	
M140 (2-B)	YEFV014C003	Insulator	1	
M141 (2-C) (3-A)	YEFX0054C005	Spring	2	
M142 (3-B)	YEFA134C004	Shild Plate	1	
M143 ◈	XSS3 + 6FXS	⊕ Screw, Flush 3mmø x 6mm	2	
M144 (2-A)	YEFE074C006	Knob for Switch and Volume	1	
M145 (2-A)	YEFE074C005	Knob for Tone Control	1	
M146 (2-A)	YEFE074C004	Knob for Tune Control	1	
M147 (2-A)	YEFE084C003	Knob for Balance Control	1	
M148 (3-C)	YEJV014C001	Bolt	1	
M149 (3-C)	XWA5BFX	Washer	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M150 ★	YEJS064C001	⊕ Screw Cuptight	2	
M151	YEJN01057	Nut	1	
M152	RHG211TZA	Pad	1	
TUNER				
M50	YEAU014C001	Tuner Ass'y	1	
INSTALLATION PARTS				
A101	YEFX999440	Dismounting Bracket (U-Shaped)	2	
A102	YEFX0211710	Mounting Case	1	
A103	YEFS01174	Rubber Cushion	1	
A104	YEFG044C001	Rear Support Strap	1	
A105	XVG5C25FXS	Bolt, Hexagon	1	
A106	XNG5AFXS	Nut, Hexagon	2	
A107	XWA5BFX	Spring Washer	2	
A108	XWG5FX	Plain Waxher	2	
A109	XWC5CFX	Washer, Toothed Lock	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
TAPE PLAYER PARTS (17, 6, 60)				
HEAD				
H (2-C)	YEAHTN727MH	Playback Head	1	
MOTOR				
M200 (3-B)	YEAK01010	DC Motor Ass'y w/Pulley	1	
SWITCHES				
M201 (3-A)	YEAP1597	Slide Switch (SW203) w/PCB	1	
M202 (3-A)	YEAS134C001	Muting Switch (SW202)	1	
M202-1 (2-C)	YEAS07136	Auto Reverse Switch (SW201)	1	
MECHANICAL PARTS				
M203 (2-A)	YEFA01754	Chassis Ass'y	1	
M204 (3-B)	YEFX003268	Main Gear	1	
M205 (3-B)	YEFR03055	Clutch Belt	1	
M206 (3-C)	YEFX249293	Change Plate Ass'y	1	
M207 (3-C)	YEFX005956	H.S Spring	1	
M208 (3-C)	YEFA01755	Main Plate (M)	1	
M209 (3-B)	YEFX233205	Pinch Roller Arm (F) Ass'y	1	
M210 (3-C)	YEFX013012	T.S Actuator	1	
M211 (3-C)	YEFX249294	F.R Lock Plate	1	
M212 (3-C)	YEFX005957	F.R Lock Spring	1	
M213 (2-C)	YEFX026098	Center Pulley	1	
M214 (2-B)	YEFX005958	Control Spring	1	
M215 (2-B)	YEJS06061	Collar Screw	1	
M216 (2-C)	YEAP1596	P.C. Board	1	
M217 (3-C)	YEFX005959	T.S Actuator Spring	1	
M218 (2-B)	YEFX046753	F.R Slide Plate	1	
M219 (2-B)	YEFX046754	F.R Actuator	1	
M220 (2-B)	YEFX005960	F.R Actuator Spring	1	
M221 (2-B)	YEFX233206	Pinch Roller Arm (R) Ass'y	1	
M222 (2-B)	YEFX0211655	Pull Plate	1	
M223 (2-A)	YEFX046755	T.G Push Plate	1	

EXPLODED VIEW(TAPE DECK)/AUFGELÖSTE DARSTELLUNGS(TONBAND GERÄT)

■ Numbers in ○ are indicated REF. No. in the REPLACEMENT PARTS LIST.



[17-6, 60]

CQ-474EG

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M224 (2-A)	YEFX046756	T.G Actuator	1	
M225 (1-C)	YEFX026099	Head Panel Roller	1	
M226 (2-C)	YEFX046778	Head Panel (M) Ass'y	1	
M227 (2-C)	YEFX239287	Tape Guide	1	
M228 (2-C)	YEFX005961	Head Spring Plate	1	
M229 (2-C)	YEFX013013	P.R. Actuator	1	
M230 (2-C)	YEFX005962	Pinch Roller Spring	1	
M231 (1-C)	YEFX005963	H.P Spring (M)	1	
M232 (1-B) (2-C)	YEFX213176	Flywheel Capstan (R)	2	
M233 (1-B)	YEJS06075	Camers Screw (Flat) 2.6 x 4 x 4	1	
M234 (1-B)	YEFR03056	Main Belt	1	
M235 (1-B)	YEFA01756	M.G Plate Ass'y	1	
M236 (1-B)	YEFX046757	F.G. Plate Ass'y	1	
M237 (1-B)	YEFX046758	R.G Plate Ass'y	1	
M238 (1-B)	YEFX005964	F.R Gear Plate Spring	1	
M239 (1-A) (1-B)	YEFX003269	F. Gear	2	
M240 (1-B)	YEFX046759	E.D Plate (F)	1	
M241 (1-A)	YEFX046760	E.D Plate (R)	1	
M242 (1-B)	YEFX046761	E.S Push Lever	1	
M243 (1-B)	YEFX046762	T.G Plate (F) Ass'y	1	
M244 (1-B)	YEFX046763	T.G Plate (R) Ass'y	1	
M245 (1-B)	YEFX005965	T.G Plate Spring	1	
M246 (1-B)	YEFX003270	T. Gear	2	
M247 (1-A)	YEFX003271	F.T Gear	2	
M248 (2-A)	YEFX026100	F.R Clutch Ass'y	1	
M249 (2-A)	YEFX003272	Device Gear (Upper)	1	
M250 (2-A)	YEFX003273	Device Gear (Lower)	1	
M251 (2-A)	YEFX003274	D.T Gear	1	
M252 (2-B)	YEFX046764	E.S Plate	1	
M253 (2-B)	YEFX003275A	T.S Actuator Gear	1	
M254 (2-B)	YEFX003276	Turn Over Gear	1	
M255 (2-B)	YEFX046765	Stop Arm	1	
M256 (2-B)	YEFX005966	T.S Spring	1	
M257 (1-B)	YEFX046766	Trigger Arm	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M258 (2-A) (2-B)	YEFX005967	E.D Spring	2	
M259 (2-A) (2-B)	YEFX026101	E.D Peace	2	
M260 (2-A) (2-B)	YEFX209219	Take-up Reel Sub-Ass'y	2	
M261 (2-B)	YEFX026102	Turn Over Gear Collar	1	
M262 (3-A)	YEFX021656	P.M Bracket	1	
M264 (3-B)	YEFX046767	Switch Actuator	1	
M265 (3-B)	YEFX005968	P.S Spring	1	
M266 (2-A)	YEFX046768	Push Lever Ass'y	1	
M267 (2-A)	YEFX046769	C.H Push Plate (M) Ass'y	1	
M268 (2-A)	YEFX005969	Push Lever Spring	1	
M269 (3-A)	YEFX005970	C.H Spring	1	
M270 (3-A)	YEFX005971	Lift Up Lever Spring	1	
M271 (3-A)	YEFX046770	Lift Up Lever	1	
M272 (3-B)	YEFX0211657	F.R Bracket Ass'y	1	
M273 (4-C)	YEFX046771	REW Lever	1	
M274 (4-C)	YEFX046772	F.F Lever	1	
M275 (4-C)	YEFX046773	P.C Plate	1	
M276 (4-B)	YEFX005972	F.R Lever Spring	2	
M277 (4-B)	YEFA01757	Case Lifter	1	
M278 (4-B)	YEFX046774	P.E Plate Ass'y	1	
M279 (4-A)	YEFX005973	P.E Spring	1	
M280 (4-A)	YEFX005974	Turn Over Spring	1	
M281 (4-A)	YEFX046775	Pack Slider	1	
M282 (4-B)	YEFX046776	C.D Plate	1	
M283 (4-B)	YEFX005975	C.D Spring	1	
M284 (3-A)	YEFA01758	Cassette Case	1	
M285 (2-A)	YEFX046777	Timing Plate	1	
M286 (2-A)	YEFX005976	Spring	1	
M287 (4-A)	YEFS01404	Rubber Cushion	1	
M288 (3-A)	YEJS06055	Camera Screw 1.7 x 3.5	1	
M289 (2-C)	YEJS06056	Tams Screw 2.0 x 5	2	
M290 (2-B) (3-A)	YEJS06057	Camera Screw 2.0 x 2	3	
M291 (3-B) (2-C)	YEJS06063	Screw Special 2.0 x 4	2	
M292 (2-C) (3-A)	YEJS06058	Camera Screw (Tapping)s 2.0 x 3	3	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
M293 (1-A)	YEJS06059	Camera Screw (Flat) 2.0 x 3.5	2	
M294 (4-B)	YEJS06060	Camera Screw (Tapping)s 2.0 x 4	1	
M295 (2-A,B,C) (1-A,B)	YEJW05043	Polyslider Washer (Cut) 1.2 x 3.0 x 0.25	16	
M296 (2-B)	YEJW05044	Polyslider Washer 2.1 x 5.0 x 0.13	2	
M297 (2-A) (3-C)	YEJW05045	Polyslider Washer (Cut) 1.6 x 3.8 x 0.13	2	
M298 (3-C) (2-B)	YEJW05046	Polyslider Washer (Cut) 2.1 x 5.0 x 0.4	2	
M299 (1-B)	YEJW04028	Lumilar Washer 3.1 x 4.8 x 0.1	1	
M300 (4-C)	YEJW05047	Polyslider Washer (Cut) 3.0 x 6.0 x 0.5	1	
M301 (3-C)	YEFX014028	E-Ring (B) Special 1.5	1	
M302 (1-C)	YEFX014029	E-Ring 1.2	1	
M303 (4-B)	YEFX014030	E-Ring 1.5	1	
M304 (2-A,B) (3-B)	YEFX014031	E-Ring 2.0	3	
M305 (2-B) (3-B)	YEJW05048	Polyslider Washer (Cut) 1.55 x 3.8 x 0.5	2	
M306 (2-B) (3-B)	YEJW05049	Polyslider Wahser 2.0 x 3.5 x 0.2	2	
M307 (3-A)	YEJT03039	C Tapping Screw (Bind) 2.0 x 4	1	
M308 (1-A)	YEFX999446	Slip Sheet	1	
M309 (3-C)	YEJW05053	Poly Slider 1.6 x 3.8 x 4	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
ICs AND TRANSISTORS				
IC101	YEAMPC1216VL	MW/LW RF Amp, Conv., IF Amp, Det.	1	
IC151	AN7256ABC	FM IF Amp	1	
IC202	AN7311	Tape EQ	1	
IC253	AN7168	AF Power Amp	1	
IC501	AN6130N	FM EIA	1	
IC551	YEAMBA1350	FM MPX	1	
IC750	YEAMLA2220	VF Decoder	1	
IC751	YEAMLA2211	VF Decoder	1	
Q151	2SC2206BC	FM IF Amp	1	
Q210	2SA684QRS	Motor Control	1	
Q211, 212	2SD636RST	Switching , Mute	2	
Q312	2SD636RST	Mute	1	
Q551	2SD636RST	ASC	1	
Q701	YEAN2SD471	Voltage Stabilizer	1	
Q752	YEAN2SD734EF	Mute	1	
DIODES				
D203, 204	LN310GP	LED, Tape Direction Indicator	2	
D205	MA165	FM Stereo Indicator	1	
D551	LN210RP	LED	1	
D552, 553	MA165		2	
D701	YEAD10E2		1	
D702	YEADRD91EB2	Voltage Stabilizer	1	
D750, 753	MA165		2	
D751	LN410YP	LED, VF Indicator	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
		CAPACITORS		
C101	YECCD1H391KM	390 PF 50WV Ceramic	1	
C103	YECCD1H820JM	82 PF 50WV Ceramic	1	
C104	YECCD1E182KB	0.0018 MFD 25WV Ceramic	1	
C105	YECCD1E102KB	0.001 MFD 25WV Ceramic	1	
C106	YECQP2A681J	680 PF 100WV Polyester	1	
C109	YECCD1H390JU	39 PF 50WV Ceramic	1	
C120	YECCD1H221JH	220 PF 50WV Ceramic	1	
C121	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C122	YECCD1E103KB	0.01 MFD 25WV Ceramic	1	
C125	YECCD1E103KB	0.01 MFD 25WV Ceramic	1	
C126	YECCD1E332KB	0.0033 MFD 25WV Ceramic	1	
C127	YECCD1E333KB	0.033 MFD 25WV Ceramic	1	
C128	ECEA1CK220	22 MFD 16WV Electrolytic	1	
C129	YECCD1E332KB	0.0033 MFD 25WV Ceramic	1	
C130	YECQP2A681J	680 PF 100WV Polyester	1	
C131	YECCD1H820JM	82 PF 50WV Ceramic	1	
C132	ECEA1CK220	22 MFD 16WV Electrolytic	1	
C133	YECCD1E223KB	0.022 MFD 25WV Ceramic	1	
C134	ECEA1EK3R3	3.3 MFD 25WV Electrolytic	1	
C135	ECEA1HKR22	0.22 MFD 50WV Electrolytic	1	
C136	ECEA1ASS101	100 MFD 10WV Electrolytic	1	
C138	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C155, 156	YECCD1E223KB	0.022 MFD 25WV Ceramic	2	
C158, 159	YECCD1E103KB	0.01 MFD 25WV Ceramic	2	
C160 to 162	YECCD1E223KB	0.022 MFD 25WV Ceramic	3	
C163	YECCD1E103KB	0.01 MFD 25WV Ceramic	1	
C164	YECCD1H101KM	100 PF 50WV Ceramic	1	
C165	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C202	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C203	YECCD1E273KB	0.027 MFD 25WV Ceramic	1	
C204	ECEA0JK101	100 MFD 6WV Electrolytic	1	
C205	ECEA1HK010	1 MFD 50WV Electrolytic	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C207	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C210	YECCD1E102KB	0.001 MFD 25WV Ceramic	1	
C251	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C257	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C258	ECEA1AU101	100 MFD 10WV Electrolytic	1	
C259	YECCD1E102KB	0.001 MFD 25WV Ceramic	1	
C260	ECEA1CU102	1000 MFD 16WV Electrolytic	1	
C261	ECQV1H473JZ	0.047 MFD 50WV Polyester	1	
C262	ECEA1AK470	47 MFD 10WV Electrolytic	1	
C263	ECEA1CU102	1000 MFD 16WV Electrolytic	1	
C273	ECQV1H104JZ	0.1 MFD 50WV Polyester	1	
C297	ECEA1CS221	220 MFD 16WV Electrolytic	1	
C298	ECEA1CK220	22 MFD 16WV Electrolytic	1	
C299	ECEA1CU471	470 MFD 16WV Electrolytic	1	
C302	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C303	YECCD1E273KB	0.027 MFD 25WV Ceramic	1	
C304	ECEA0JK101	100 MFD 6WV Electrolytic	1	
C305	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C310	YECCD1E102KB	0.001 MFD 25WV Ceramic	1	
C351	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C357	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C358	ECEA1AU101	100 MFD 10WV Electrolytic	1	
C359	YECCD1E102KB	0.001 MFD 25WV Ceramic	1	
C360	ECEA1CS101	100 MFD 16WV Electrolytic	1	
C361	ECQV1H473JZ	0.047 MFD 50WV Polyester	1	
C362	ECEA1AK470	47 MFD 10WV Electrolytic	1	
C363	ECEA1CU102	1000 MFD 16WV Electrolytic	1	
C373	ECQV1H104JZ	0.1 MFD 50WV Polyester	1	
C501	YECCD1H181JM	180 PF 50WV Ceramic	1	
C502	YECCD1H050CM	5 PF 50WV Ceramic	1	
C503	YECCD1E103KB	0.01 MFD 25WV Ceramic	1	
C504	ECEA1CK100	10 MFD 16WV Electorolytic	1	
C505	YECCD1E103KB	0.01 MFD 25WV Ceramic	1	
C506	ECEA1HKR47	0.47 MFD 50WV Electrolytic	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C507	ECEA1HKR47	0.47 MFD 50WV Electrolytic	1	
C508	YECQZ1H222K	0.0022 MFD 50WV Polyester	1	
C509, 510	YECQP2A681J	680 PF 100WV Polyester	2	
C511	YECQZ1H152K	0.015 MFD 50WV Polyester	1	
C512	YECCD1H680JM	68 PF 50WV Ceramic	1	
C513	YECQZ1H682K	0.0068 MFD 50WV Polyester	1	
C514	YECQZ1H153K	0.015 MFD 50WV Polyester	1	
C515, 551	ECEA1CK100	10 MFD 16WV Electrolytic	2	
C552	YECCD1H331JM	330 PF 50WV Ceramic	1	
C553	YECCD1E333KB	0.033 MFD 25WV Ceramic	1	
C554	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C555	YECCD1E333KB	0.033 MFD 25WV Ceramic	1	
C556	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C557	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C558	ECSF1VE224	0.22 MFD 35WV Tantalum	1	
C559	ECEA1HKR47	0.47 MFD 50WV Electrolytic	1	
C560	YECQP2A681J	680 PF 100WV Polyester	1	
C561	YECCD1E333KB	0.033 MFD 25WV Ceramic	1	
C562	YECQZ1H472K	0.0047 MFD 50WV Polyester	1	
C563	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C701	YECCD1E103KB	0.01 MFD 25WV Ceramic	1	
C702	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C703	ECEA1AK470	47 MFD 10WV Electrolytic	1	
C705	ECEA1CK220	22 MFD 16WV Electrolytic	1	
C750, 751	ECEA1CK100	10 MFD 16WV Electrolytic	2	
C752	ECEA1AU101	100 MFD 10WV Electrolytic	1	
C753	ECEA1HKR47	0.47 MFD 50WV Electrolytic	1	
C754	YECCD1E473KB	0.047 MFD 25WV Ceramic	1	
C755	ECEA1HKR33	0.33 MFD 50WV Electrolytic	1	
C756	ECEA1HK010	1 MFD 50WV Electrolytic	1	
C757	ECEA1AU101	100 MFD 10WV Electrolytic	1	
C758, 759	ECQB1H102JZ	0.001 MFD 50WV Polyester	2	
C760	ECEA1AK220	22 MFD 10WV Electrolytic	1	
C761	YECCD1E683KB	0.068 MFD 25WV Ceramic	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
C763, 764	ECEA1AU221	220 MFD 10WV Electrolytic	2	
C765, 766	ECEA1HKR47	0.47 MFD 50WV Electrolytic	2	
C767, 768	ECEA1EK4R7	4.7 MFD 25WV Electrolytic	2	
C769	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C770	ECSF1VE224	0.22 MFD 35WV Tantalum	1	
C771	ECEA1EK4R7	4.7 MFD 25WV Electrolytic	1	
C772	ECEA1AK470	47 MFD 10WV Electrolytic	1	
C773	ECEA1CK100	10 MFD 16WV Electrolytic	1	
C774	ECEA1AK470	47 MFD 10WV Electrolytic	1	
C775	YECCD1H101KM	100 PF 50WV Ceramic	1	
C776, 777	ECEA0JK101	100 MFD 6WV Electrolytic	2	
C778	ECEA1EK4R7	4.7 MFD 25WV Electrolytic	1	
C779	YECCD1E473KB	0.047 MFD 25WV Ceramic	2	
C780	ECEA1AU101	100 MFD 10WV Electrolytic	1	
C781	YECCD1E222KB	0.0022 MFD 25WV Ceramic	1	
CS701	YECCL4C001	Feedthrough	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
		RESISTORS		
R101	ERDS2TJ682	6.8k ohms 1/8W Carbon	1	
R102	ERDS2TJ561	560 ohms 1/8W Carbon	1	
R103	ERDS2TJ332	3.3k ohms 1/8W Carbon	1	
R104	ERDS2TJ823	82k ohms 1/8W Carbon	1	IC101 E Rank
	ERDS2TJ563	56k ohms 1/8W Carbon	1	IC101 F Rank
	ERDS2TJ393	39k ohms 1/8W Carbon	1	IC101 H Rank
R108	ERDS2TJ121	120 ohms 1/8W Carbon	1	
R109 (J32)	ERDS2TJ220	22 ohms 1/8W Carbon	1	
R152	ERDS2TJ561	560 ohms 1/8W Carbon	1	
R153	ERDS2TJ332	3.3k ohms 1/8W Carbon	1	
R155	ERDS2TJ151	150 ohms 1/8W Carbon	1	
R156	ERDS2TJ561	560 ohms 1/8W Carbon	1	
R157	ERDS2TJ331	330 ohms 1/8W Carbon	1	
R158	ERDS2TJ391	390 ohms 1/8W Carbon	1	
R159	ERDS2TJ222	2.2k ohms 1/8W Carbon	1	
R160, 163	ERDS2TJ104	100k ohms 1/8W Carbon	2	
R164	ERDS2TJ153	15k ohms 1/8W Carbon	1	IC151 A Rank
	ERDS2TJ273	27k ohms 1/8W Carbon	1	IC151 B Rank
	ERDS2TJ333	33k ohms 1/8W Carbon	1	IC151 C Rank
R165	ERDS2TJ560	56 ohms 1/8W Carbon	1	
R201	ERDS2TJ124	120k ohms 1/8W Carbon	1	
R202	ERDS2TJ472	4.7k ohms 1/8W Carbon	1	
R203	ERDS2TJ270	27 ohms 1/8W Carbon	1	
R205	ERDS2TJ182	1.8k ohms 1/8W Carbon	1	
R209	ERDS2TJ221	220 ohms 1/8W Carbon	1	
R210	ERDS2TJ333	33k ohms 1W Carbon	1	
R211	ERDS2TJ102	1k ohms 1/8W Carbon	1	
R212	ERDS2TJ333	33k ohms 1/8W Carbon	1	
R213	ERDS2TJ332	3.3k ohms 1/8W Carbon	1	
R214	ERDS2TJ104	100k ohms 1/8W Carbon	1	
R215	ERDS2EJ222	2.2k ohms 1/8W Carbon	1	
R216	ERDS2TJ103	10k ohms 1/8W Carbon	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
R217	ERDS2TJ221	220 ohms 1/8W Carbon	1	
R233	ERDS2TJ102	1k ohms 1/8W Carbon	1	
R258	ERDS2TJ122	1.2k ohms 1/8W Carbon	1	
R259	ERDS2TJ560	56 ohms 1/8W Carbon	1	
R260	ERDS2TJ2R2	2.2 ohms 1/8W Carbon	1	
R299	ERDS1FJ2R2	2.2 ohms 1/2W Carbon	1	
R301	ERDS2TJ124	120k ohms 1/8W Carbon	1	
R302	ERDS2TJ472	4.7k ohms 1/8W Carbon	1	
R303	ERDS2EJ270	27 ohms 1/8W Carbon	1	
R305	ERDS2TJ182	1.8k ohms 1/8W Carbon	1	
R310	ERDS2EJ333	33k ohms 1/8W Carbon	1	
R358	ERDS2TJ122	1.2k ohms 1/8W Carbon	1	
R359	ERDS2TJ560	56 ohms 1/8W Carbon	1	
R360	ERDS2TJ2R2	2.2 ohms 1/8W Carbon	1	
R501, 502	ERDS2TJ222	2.2k ohms 1/8W Carbon	2	
R503	ERDS2TJ272	2.7k ohms 1/8W Carbon	1	
R504	ERDS2TJ223	22k ohms 1/8W Carbon	1	
R505	ERDS2TJ474	470k ohms 1/8W Carbon	1	
R506	ERDS2TJ104	100k ohms 1/8W Carbon	1	
R507	ERDS2TJ102	1k ohms 1/8W Carbon	1	
R508	ERDS2TJ103	10k ohms 1/8W Carbon	1	
R511	ERDS2TJ222	2.2k ohms 1/8W Carbon	1	
R512	ERDS2TJ103	10k ohms 1/8W Carbon	1	
R513	ERDS2TJ333	33k ohms 1/8W Carbon	1	
R518	ERDS2TJ333	33k ohms 1/8W Carbon	1	
R551	ERDS2TJ473	47k ohms 1/8W Carbon	1	
R552	ERDS2TJ222	2.2k ohms 1/8W Carbon	1	
R553	ERDS2TJ103	10k ohms 1/8W Carbon	1	
R554	ERDS2TJ102	1k ohms 1/8W Carbon	1	
R555	ERDS2TJ152	1.5k ohms 1/8W Carbon	1	
R556	ERDS2TJ103	10k ohms 1/8W Carbon	1	
R557, 558	ERDS2TJ332	3.3k ohms 1/8W Carbon	2	
R561	ERDS2TJ103	10k ohms 1/8W Carbon	1	
R563	ERDS2TJ822	8.2k ohms 1/8W Carbon	1	

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
R564	ERDS2TJ392	3.9k ohms 1/8W Carbon	1	
R565	ERDS2TJ393	39k ohms 1/8W Carbon	1	
R566	ERDS2TJ272	2.7k ohms 1/8W Carbon	1	
R567	ERDS2TJ183	18k ohms 1/8W Carbon	1	
R569	ERDS2TJ153	15k ohms 1/8W Carbon	1	
R570, 571	ERDS2TJ333	33k ohms 1/8W Carbon	2	
R572	ERDS2TJ152	1.5k ohms 1/8W Carbon	1	
R573	ERDS2TJ101	100 ohms 1/8W Carbon	1	
R701	ERD25FJ1R0	1 ohm 1/4W Carbon	1	
R702	ERDS2TJ471	470 ohms 1/8W Carbon	1	
R703	ERDS1FJ5R6	5.6 ohms 1W Carbon	1	
R750, 751	ERDS2TJ332	3.3k ohms 1/8W Carbon	2	
R752	ERDS2TJ682	6.8k ohms 1/8W Carbon	1	
R753	ERDS2TJ104	100k ohms 1/8W Carbon	1	
R755	ERDS2TJ151	150 ohms 1/8W Carbon	1	
R756	ERDS2TJ222	2.2k ohms 1/8W Carbon	1	
R757	ERDS2TJ473	47k ohms 1/8W Carbon	1	
R758	ERDS2TJ104	100k ohms 1/8W Carbon	1	
R759	ERDS2TJ473	47k ohms 1/8W Carbon	1	
R765	ERDS2EJ150	15 ohms 1/8W Carbon	1	
R766	ERDS2EJ682	6.8k ohms 1/8W Carbon	1	
R767	ERDS2TJ332	3.3k ohms 1/8W Carbon	1	
R768	ERDS2TJ682	6.8k ohms 1/8W Carbon	1	
R769	ERDS2TJ103	10k ohms 1/8W Carbon	1	
R770	ERDS2TJ123	12k ohms 1/8W Carbon	1	
R771	ERDS2TJ183	18k ohms 1/8W Carbon	1	
R772	ERDS2TJ333	33k ohms 1/8W Carbon	1	
R773	ERDS2TJ564	560k ohms 1/8W Carbon	1	
R774	ERDS2TJ334	330k ohms 1/8W Carbon	1	
R775	ERDS2TJ474	470k ohms 1/8W Carbon	1	
R776	ERDS2TJ153	15k ohms 1/8W Carbon	1	
R777	ERDS2TJ332	3.3k ohms 1/8W Carbon	1	
R778	ERDS2TJ561	560 ohms 1/8W Carbon	1	
R779	ERDS2TJ121	120 ohms 1/8W Carbon	1	
R780	ERDS2TJ473	47k ohms 1/8W Carbon	1	
R781	ERDS2EJ102	1k ohms 1/8W Carbon	1	
R782	ERDS2TJ332	3.3k ohms 1/8W Carbon	1	VF BLOCK
R782	ERDS2TJ391	390 ohms 1/8W Carbon	1	RADIO BLOCK
R791	ERDS2TJ100	10 ohms 1/8W Carbon	1	
R798	ERD25TJ100	10 ohms 1/4W Carbon	1	

VARIABLE CAPACITORS

C102	YECTTC8RT900	90 PF	Trimmer	1
C107	YECTTD8RT300	30 PF	Trimmer	1
C108	YECTTC8RT900	90 PF	Trimmer	1
C137	ECRBA090M13	90 PF	Trimmer	1

VARIABLE RESISTORS

VR151	YEVN4CH08503	50k ohms (A)	Semi-fixed	1
VR257, 357	EVKRAB300B15	100k ohms	Volume Control	1
w/SW701			Power Switch	
VR251, 252	YEVK4CK12A03	20k ohms	Tone Control	1
352		20k ohms (G)	Balance Control	
VR551	YEVN4CH08203	20k ohms (A)		1
VR552	YEVN4CH08103	10k ohms (A)		1
VR750	YEVN4CH18502	5k ohms		1

Ref. No.	Part No.	Part Name & Description	Pcs Set	Remarks
COILS, TRANSFORMERS AND CERAMIC FILTERS				
L101	YELA4C07S001	AM(MW) ANT Coil	1	
L102	YELA4C07S002	AM(LW) ANT Coil	1	
L103	YELT4C07S002	AM(LW) RF Coil	1	
L104	YELT06C150K	AM(LW) RF Coil	1	
L105	YELT05N181K	AM(MW) RF Coil	1	
L106	YELL4C07S001	AM(MW) OSC Coil	1	
L107	YELL4C07S002	AM(LW) OSC Coil	1	
L152	ELQS270KB	FM RF Choke Coil	1	
L501	YELM4C07S001	FM MPX Coil	1	
L701	YETQ024C001	Choke Coil	1	
L750	YELM4C07S002	Trapping Coil, 57 kHz	1	
IFT101	YEIA4C07S001	AM(MW/LW) IFT	1	
IFT151	YEIF4C07S001	FM IFT	1	
CF101	YEIN08N5020	AM(MW/LW) Ceramic Filter	1	
CF102	YEIN08N5024	AM(MW/LW) Ceramic Filter	1	
CF151 to 153	YEIN09N5022	FM Ceramic Filter	1	
COMPONENT COMBINATIONS				
Z501	EXF3SM04A	180 PF x 3	1	
Z502	EXBS84472K	4.7k ohms x 4	1	
SWITCH				
SW101, 204	YEAS094C002	Band Seledt Switch, MONO/AUTO ST Switch	1	
751		VF Switch		
CRYSTAL				
X750	YEXLSB456F13	Crystal, 456 kHz	1	
PRINTINGS				
A120	YEFM284C008	Instruction Book	1	